The Milbank Memorial Fund

QUARTERLY

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IN THIS ISSUE

RISING COSTS of medical care and a growing demand by the public for medical services have stimulated rapid increase in the use of insurance for prepayment of hospital and medical care and also have led to new approaches in the organization of medical practice in order to make the services of medical specialists and preventive services more available.

In 1947, a plan for prepayment of comprehensive medical services to be provided by private physicians organized on a group practice basis was instituted by the Health Insurance Plan of Greater New York (HIP). The experience of this voluntary, nonprofit insurance program is being studied to make available information on economic and administrative problems related to the provision of medical care and on the amount and kinds of services utilized by enrollees and their dependents.

In the first report, "Longitudinal Analyses of Four Years of Experience of a Prepaid Comprehensive Medical Care Plan," Paul M. Densen, Neva R. Deardorff, and Eve Balamuth have examined the enrollment experience and the relation of such factors as type of contract, sex, age, and number of dependents to continuance of enrollment.

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The relation of socio-economic status to frequency of medically attended illness is reported by Katherine B. Laughton, Carol W. Buck, and G. E. Hobbs in the paper entitled "Socio-Economic Status and Illness." For individuals in 105 families enrolled in a prepaid medical care plan in Essex County, Ontario, Canada, records of physicians' services during a two-

year period were tabulated. Classificaton of socio-economic status is in terms of median rental for the area in which a family resided. For this group of families, illness among infants showed a significant inverse association with socio-economic status and chronic illness increased with decreasing status but the differences were not statistically significant. For total illness, the differences among groups were small and not significant.

• • •

In 1639, only nineteen years after the Pilgrims landed at Plymouth Rock, the Massachusetts Bay Colony enacted a law requiring the registration of births and deaths in that area. The history of vital registration in Massachusetts from this early date to comparatively recent times has been traced by Dr. Robert Gutman. The first article deals with the colonial period and it appears in this issue under the title "Birth and Death Registration in Massachusetts. I. The Colonial Background." The short series of articles on this subject will be continued in later issues.

• • •

In an article "Child Spacing as Measured from the Ages of Children in the Household" Joseph Schachter and Wilson H. Grabill describe an experimental attempt at deriving intervals between births from cross-sectional Census data on age. They apply the method to 1950 Census data and to the April 1954 Current Population Survey materials and present some of the results. The authors emphasize the limitations of the method but they believe that it has worthy potentialities and that it merits further study and development.

LONGITUDINAL ANALYSES OF FOUR YEARS OF EXPERIENCE OF A PREPAID COMPREHENSIVE MEDICAL CARE PLAN[1]

PAUL M. DENSEN, NEVA R. DEARDORFF AND EVE BALAMUTH

INTRODUCTION

THE spectacular contributions of science to medicine and the popularization of the results have greatly stimulated the demand on the part of the public for making modern medical benefits more readily accessible to a larger portion of the population.

But the very advances which have stimulated this demand and which have focused attention on the preventive aspects of disease have also contributed greatly to the cost of medical care. On the one hand, this increased cost has led to an enormous growth in the application of the insurance principle to prepayment for medical and hospital care; on the other, it has led to new approaches in the organization of medical practice to provide this care.

These changes in the methods of paying for and of providing medical care are comparative newcomers among American social institutions. Provision for prepayment of hospitalization began in 1933 with the establishment of Blue Cross plans. Prepayment of medical care is an even more recent phenomenon. Fewer than six persons per 1,000 held surgical and medical insurance in 1939. Today, according to the Health Information Foundation,[2] almost 70 per cent of the population is pro-

[1] This is the first of a series of reports based upon the records of the Health Insurance Plan of Greater New York. The analysis was made possible by a grant of funds from the Commonwealth Fund and The Rockefeller Foundation to a Committee for the Special Research Project in HIP. In addition to this analysis of the operating records of HIP, the Committee has published a report of a household morbidity survey of HIP and non-HIP families resident in New York. In addition to the authors, the following members of the Committee were most closely associated with the longitudinal analysis of the records of the Plan: Dr. Lowell J. Reed, Chairman of the Steering Committee, Dr. Selwyn D. Collins, Jerome Cornfield, Dr. Forrest E. Linder.

[2] *Progress in Health Services*, v, No. 9, November, 1956. New York, Health Information Foundation.

tected or "covered" by some combination of hospital, surgical, or medical insurance.

On the organizational side change has been less rapid, but there has been a steady growth in the number of group practice organizations. It has been estimated[3] that while in 1932 there were 239 medical groups with 1,466 physicians in the United States, by 1951 there were 600 such groups with over 5,000 physicians.

Growth in voluntary health insurance both in terms of people covered and in benefits offered will undoubtedly continue. New organizational patterns will continue to emerge. Unlike their predecessors, however, these new developments will be able to call upon a body of experience to guide them which was not available to most of the present voluntary prepayment plans for medical care at the time they were founded. The experience of one such plan—the Health Insurance Plan of Greater New York (HIP)—has been analyzed in the belief that it will be of value not only to HIP but also to administrators of other medical care plans, to welfare fund administrators, to public health officials, to community planners, to sociologists, and to the public in general, all of whom are interested in facts that bear on the problem of making benefits of modern medical care available to the population.

The HIP experience will be presented in three parts: Part I, the present paper, deals with enrollment experience and sets forth data on the extent to which enrollees of different classes remain in the Plan and factors influencing continuance of their enrollment; Part II will present information on the number and kinds of physicians' services utilized by enrollees and how this utilization varies with length of coverage in the Plan; Part III will contain data on morbidity among enrollees of the Plan and will seek to develop measures of prevalence and incidence of various diagnoses as reflected in the operating records of HIP. These data represent the results of a "longitudinal" anal-

[3] Building America's Health. Vol. 3, p. 297, United States Government Printing Office, 1951.

ysis of the first four years of operation in HIP—that is, they show the experience of the same group of individuals followed through four years of calendar time. They supplement material contained in a published report on the findings of a field survey inquiring into the health and medical care of HIP and New York City households[4] which was essentially a cross-sectional study depicting the situation at a particular point in time.

Description of the HIP Program

Since the meaning of the data to be presented cannot be properly assessed without an understanding of the organizational framework in which they have been collected, a brief description of the HIP program is in order.

HIP grew out of the late Mayor Fiorello LaGuardia's concern for the health of the employees of the City of New York and of their families. This concern extended not only to providing a means for meeting the costs of medical care but also to the kind of medical care to be provided. Mr. LaGuardia felt that such medical care should be comprehensive in coverage and should emphasize maintenance of health and prevention of illness.

With this philosophy as a guiding principle, the Health Insurance Plan of Greater New York began operation as a nonprofit corporation in March, 1947. It is generally classed as a "service" program which means that in return for the premium the enrollee is entitled to receive a variety of medical services. He receives no bills for these services, the premium paying the entire cost.[5] In this sense, once the premium is paid there are no additional costs for medical care in HIP. This contrasts with the "indemnity" type of program in which the enrollee is billed by the doctor and is indemnified in cash according to a fixed schedule of fees for those medical services covered in the

[4] Health and Medical Care in New York City. Harvard University Press for the Commonwealth Fund, 1957.

[5] The only exception to this is a possible $2.00 charge for a night call to the home between 10:00 p.m. and 7:00 a.m.

contract. The indemnity received may or may not equal the amount of the physician's bill.[6]

The HIP contract makes available to the enrollee the following services in the home, physician's office, or hospital: general medical care; surgical, maternity, pediatric, and other specialist care; periodic health examinations; immunizations; laboratory and x-ray services; physical therapy; administration of blood and plasma; psychiatric consultations; visiting nurse services; and ambulance services.[7] There are no waiting periods for service and no limitations on number of services or duration of medical care. Group enrollment is required, and, with few exceptions the employer pays at least half the premium directly or, in the case of union welfare funds, all of the premium is usually paid as a fringe benefit. A person losing coverage under the group contract is legally entitled to continue as an individual subscriber with a "policy in conversion."

Medical services are provided on a group-practice basis through medical groups distributed throughout New York City. The organization of these medical groups during the period of the present study is described in detail by Baehr.[8] The medical groups are paid on a per capita basis for each individual on their rolls, irrespective of the volume of service. The payment of the individual doctor in the medical groups is determined by each medical group.

Enrollment Experience

The present paper sets forth the extent to which HIP's enrollees have remained in the Plan during the four-year period 1948–1951 and examines some of the factors influencing reten-

[6] *See* Anderson, O. W. and Feldman, J. J.: Family Medical Costs and Voluntary Health Insurance: A Nationwide Survey. New York, McGraw-Hill, 1956, for a discussion of this point.

[7] Excluded are dental care, prescribed drugs and biologicals, prosthetic appliances, purely cosmetic surgery; treatment for acute alcoholism, drug addiction, and mental or nervous disorders for which care, after diagnosis, by a psychiatrist is required; illness or injuries which can be treated only in an institution which is not a hospital for general care; anesthesia and certain other services, such as administration of blood plasma, if a hospital requires its administration by its own staff. Workmen's Compensation and Veterans' Administration cases are excluded.

[8] Baehr, G.: H.I.P.—An Alternative to Compulsory Medical Insurance. *Connecticut State Medical Journal*, January, 1953, xvii, No. 1.

tion of coverage in the Plan. From the economic standpoint it is desirable to have a picture of retention of membership in a medical care plan because (a) the plan may be embarrassed financially if its enrollee population tends to stay in the plan only during periods of need for extensive medical services, (b) estimates of personnel and facilities required under certain conditions and considerations of such social questions as that of health insurance of the aged require forecasts of future enrollment in the plan, and such forecasts require knowledge of attrition rates of various components of the population, and (c) a high rate of turnover results in higher operational costs.

Knowledge of retention of coverage is also of importance from the standpoint of health maintenance. If, as in HIP, one of the objectives of a plan is to maintain and protect the health of its enrollees, continuity in membership is essential to the achievement of this aim. Moreover, research on the impact of the plan on the health of its enrollees is hampered if survivorship in the plan is low, since follow-up studies become exceedingly difficult if not impossible.

In short, facts on retention of coverage by enrollees in a medical care plan are of importance from an administrative, medical, and sociological standpoint.

Methodology: Source of Data. The basic facts needed to study membership retention in a medical care plan are the date of entry to the plan and the date of leaving. These basic data are available for each enrollee in the Registrar Division of HIP. All changes in enrollment status are noted on the enrollee's file card. Also available for each enrollee are date of birth; sex; whether the enrollee is the subscriber in whose name the contract is made out, a spouse, or a dependent; whether the type of contract covers the family or only the subscriber; and the particular class of account to which the subscriber belongs. Thus, it is possible to examine the extent to which enrollees remain in the Plan in relation to each of these factors.

Nature of Sample. Analysis of retention of coverage in this

Class of Account	Percentage of Enrollees				
	Total	Year of Entry			
		1947	1948	1949	1950
All Accounts	100.0	100.0	100.0	100.0	100.0
New York City Accounts	86.4	89.3	76.3	93.7	75.7
Board of Education	16.9	41.6	17.2	3.8	11.6
Department of Sanitation	11.3	—	39.0	5.9	10.6
Board of Transportation	27.7	—	—	62.7	14.9
Other City Departments	30.5	47.7	20.2	21.3	38.7
Union and Trustee Accounts	5.4	4.9	16.4	1.8	2.4
Other Accounts	6.8	4.2	6.0	3.7	19.0
Conversions in Year of Entry[1]	1.4	1.6	1.3	0.8	2.9
Total Enrollees Entering	27,130	6,672	5,020	10,895	4,540

[1] For enrollees entering in 1947 these may be conversions either in 1947 or 1948. "Conversions" are individuals who have lost their group enrollment status and have elected to continue their coverage under an individual contract.

Table 1. Percentage distribution of enrollees by class of account, each year of entry.

report extends from January 1, 1948 to December 31, 1951. This period covers the first four full calendar years of HIP's existence. During these four years the enrollment advanced from 76,106 to 287,659. For the purpose of this study a ten per cent sample of all enrollees resident in New York City was chosen. Selection was made on the basis of all subscribers active at any time during the study period whose certificate number ended in a specified digit[9] and who entered the Plan before January 1, 1951. This closing date for entrants was chosen to provide at least one year of coverage for persons included in the study. Altogether the sample available for analysis consisted of 27,130 enrollees.[10] The distribution of these 27,130

[9] Certificate numbers are assigned in serial number order. A pilot study showed the sample chosen by these means to be random with regard to this number.

[10] Not included in the analysis are 1,028 persons who had one or more episodes of *interrupted coverage* during the study period. These were persons who terminated coverage in the Plan and then re-entered the Plan at a later date. Because of the

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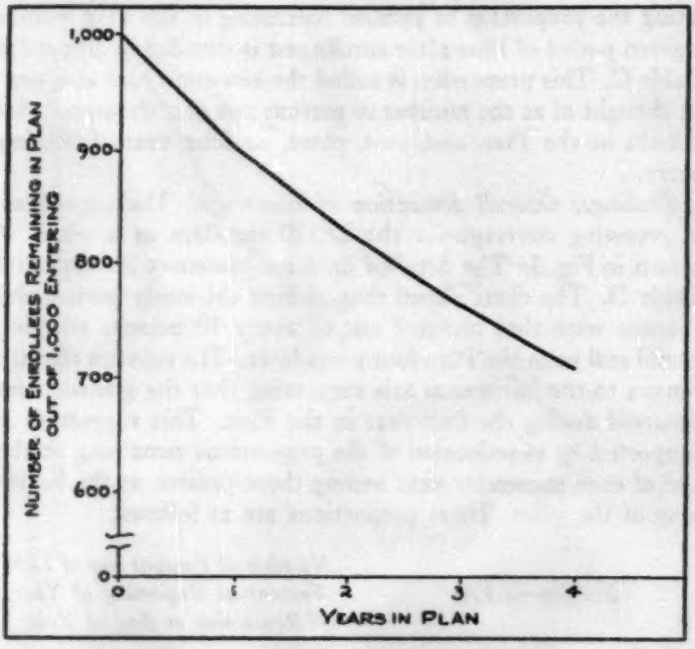

Fig. 1. Retention of coverage in HIP of all enrollees.

persons by the basic variables of the study are shown in detail in Table 1 and Appendix Tables A and B. However, of the 27,130 total persons, 11,928 were subscribers and 15,202 were dependents. In what follows the term "enrollees" refers to the entire group of 27,130 individuals but the term "subscribers" refers only to the 11,928 individuals in whose name the certificate or policy is issued.

Calculation of Proportion of Persons Remaining in HIP a Stated Period of Time after Entry. The procedure for calcu-

difficulties this group would impose on the analysis and because they were a small group relative to the total they were eliminated in the analysis of survivorship. However, although these persons with interrupted coverage were only a small proportion of the total sample, they did constitute about 20 per cent of the persons with employee-only coverage. They are unlikely to have much effect on retention rates as a whole or on retention of family-coverage groups but they could affect the retention rate of the employee-only groups.

lating the proportion of persons remaining in the Plan within a given period of time after enrollment is detailed in Appendix Table C. This proportion is called the *retention rate* and may be thought of as the number of persons out of a thousand who remain in the Plan one, two, three, or four years following entry.

Findings: Overall Retention of Coverage. The experience in retaining coverage for the 27,130 enrollees as a whole is shown in Fig. 1. The detailed data are presented in Appendix Table D. The chart shows that, during the study period, the chances were that about 7 out of every 10 persons entering would still be in the Plan four years later. The curve is slightly convex to the horizontal axis suggesting that the greatest loss occurred during the first year in the Plan. This suggestion is supported by examination of the proportions remaining at the end of each successive year among those present at the beginning of the year. These proportions are as follows:

Enrollment Year	*Number of Persons out of 1,000 Present at Beginning of Year, Remaining at End of Year*
1st	903
2nd	917
3rd	923
4th	928

In other words, if a person remains in HIP throughout the first year, the likelihood that he will leave in any one of the three subsequent years becomes progressively less, though the trend is not a very marked one.

The retention of coverage of the successive cohorts was not uniform (Fig. 2, Appendix Table D). Enrollees in the 1947 cohort showed the highest retention rates while those in the 1950 cohort had the lowest rates. About as many persons in the 1950 cohort were lost to the Plan by the end of two years as by the end of three years for the 1948 and 1949 cohorts.

In considering this variation in the experience of the several

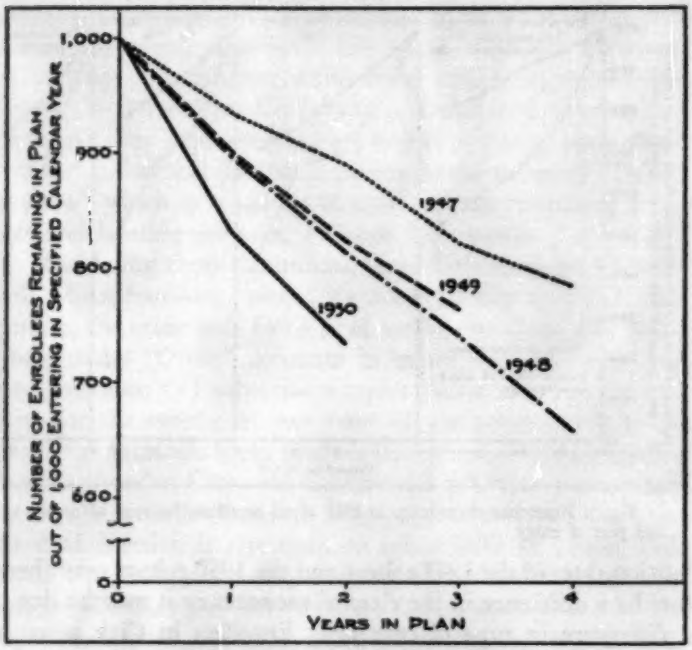

Fig. 2. Retention of coverage in HIP of all enrollees, by year of entry.

cohorts, it is important to bear in mind their composition in regard to class of account. This distribution is shown in Table 1. It can be seen that nearly 90 per cent of the 1947 cohort were employees of the City of New York and the largest single Department was the Board of Education. In the 1950 cohort the category "Other Accounts" represented 19 per cent of the new enrollees although City Departments still accounted for three fourths of the new enrollees.[11] The difference in the re-

[11] A certain amount of the higher retention rates of the 1947 cohort is the result of the technique used in setting up that cohort. The first full calendar year of HIP's operation (and the first year of the study period) was 1948. Persons who both enrolled and terminated coverage in 1947 were excluded from the cohort. Consequently, the 1947 cohort really consists of those persons who entered in 1947 and were still in the Plan on January 1st, 1948. They are a selected group. However, the effect of this selection on survivorship is not great and can be roughly estimated. The average length of time a person in the 1947 cohort would have been

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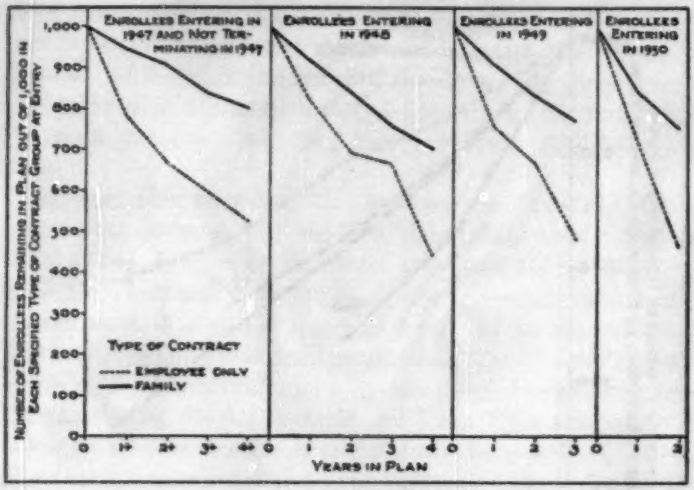

Fig. 3. Retention of coverage in HIP of all enrollees, by type of contract and year of entry.

tention rates of the 1947 cohort and the 1950 cohort may therefore be a difference in the class of accounts or it may be due to a difference in type of coverage. Enrollees in City accounts are covered under family contracts but a substantial proportion of those in non-City accounts fall in a type known as "employee-only" accounts. The influence of the type of coverage and of the class of account on retention of membership in the Plan will, therefore, be examined next.

Retention of Membership by Type of Coverage and Class of Account. In general there are two broad classes of coverage provided by HIP contracts—those in which the subscriber covers himself and his family (family coverage) and those in which the subscriber is eligible to cover only himself (employee-only coverage). The HIP retention experience of persons covered under family contracts is very much better than that of those covered under employee-only contracts. (Figure 3 and

in the Plan on January 1, 1948 was about 4 months. If the 1947 curve in Fig. 2 is moved to the left, a distance equivalent to 4 months, it will still be well above the curves for the other cohorts.

Appendix Table E.) This difference is observed in all of the cohorts. The enrollees under family contract are for the most part in City departments, while those under employee-only contract are covered predominantly in Union and Trustee accounts. All City departments have higher retention rates than either the Union and Trustee accounts or the category "Other Accounts," which is made up of small private employer contracts and housing projects. (Figure 4, Appendix Table F.)

In considering these differences, these facts must be born in mind: (1) subscribers under City accounts pay only half the premium, the other half being paid for by the City; (2) subscribers under "Other" accounts in many instances pay the entire premium; (3) subscribers under Union and Trustee accounts for the most part pay none of the premium as individuals, the premium being paid for out of union welfare funds. Subscribers under City and commercial ("Other") accounts may decide as individuals to drop their coverage, but this individual decision is not open to subscribers of Union and Trustee Accounts since they remain covered as long as the union continues to pay the premium for its members.

Because loss of coverage by a subscriber in Union and Trustee accounts is a result either of death or of failure to remain eligible for coverage by the union welfare fund, the low retention rates in this category must be ascribed primarily to instability of employment,[12] and to a low rate of conversion to individual policies (*See* discussion on *Experience with Conversions*, below). Retention rates for subscribers in "Other" accounts are poor under both family and employee-only type of contract. While instability of employment undoubtedly plays a role here also, an additional factor of importance in these accounts is the fact that many of the enrollees bear the entire cost of the premium as individuals.

Study of the curves (Fig. 4) for City accounts (all of which

[12] The chances of a person in an employee-only account terminating his coverage and then renewing it again are about three times as great as those of a person terminating from a family-coverage account. This class of individuals is characterized as having "interrupted coverage" (*see* footnote 10).

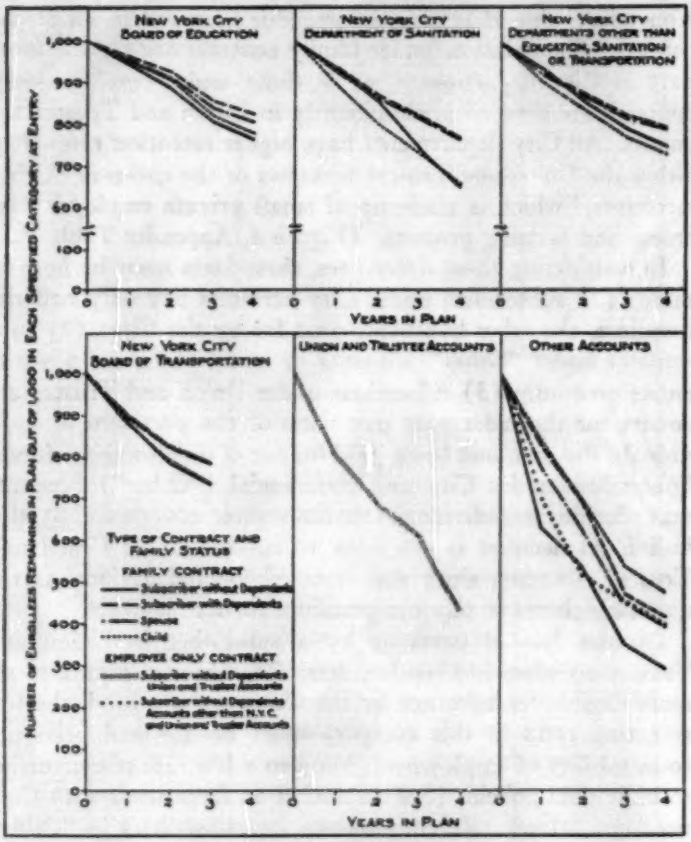

Fig. 4. Retention of coverage in HIP of all enrollees, by class of account, type of contract and family status.

are family type of contract) shows that the existence of dependents is another important factor which influences retention of coverage in the Plan. The rate of retention is always higher for subscribers with dependents than for those without dependents. The same relationship exists between subscribers under family contract with and without dependents in the group of "Other" accounts.

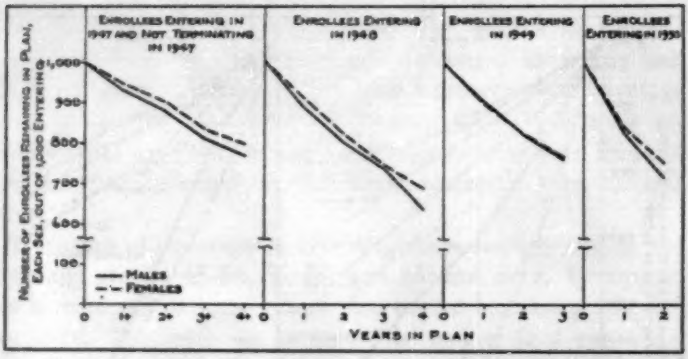

Fig. 5. Retention of coverage in HIP of all enrollees, by sex and year of entry.

The factors just discussed probably play a major part in determining retention of subscribers in the Plan. In some instances anticipation of acquiring dependents, or psychological factors related to being associated with enrollees in the same accounts who have dependents, may also exercise an influence on retention of coverage. In addition, the higher retention rates for enrollees of the Board of Education than for employees of other City departments suggest the possibility that education may also be a factor in determining continuance of coverage in the Plan. One would have to examine education explicitly to determine this.

Retention of Coverage by Sex and Age. There is a slightly but consistently higher retention rate of females as compared with males (Fig. 5, Appendix Table G) in three out of four of the cohorts. Moreover, when the data are broken further by age as well as by sex (Fig. 6, Appendix Table H) the higher retention rate of females is more pronounced and is seen in every age group except 65 and over. In that age group the number of females on which the rates are based is quite small.

There is an apparently greater variability in the retention rates with age among the men than among the women. This greater variability, however, is largely due to the much lower rate of males in the age group 25–34 than of females in this

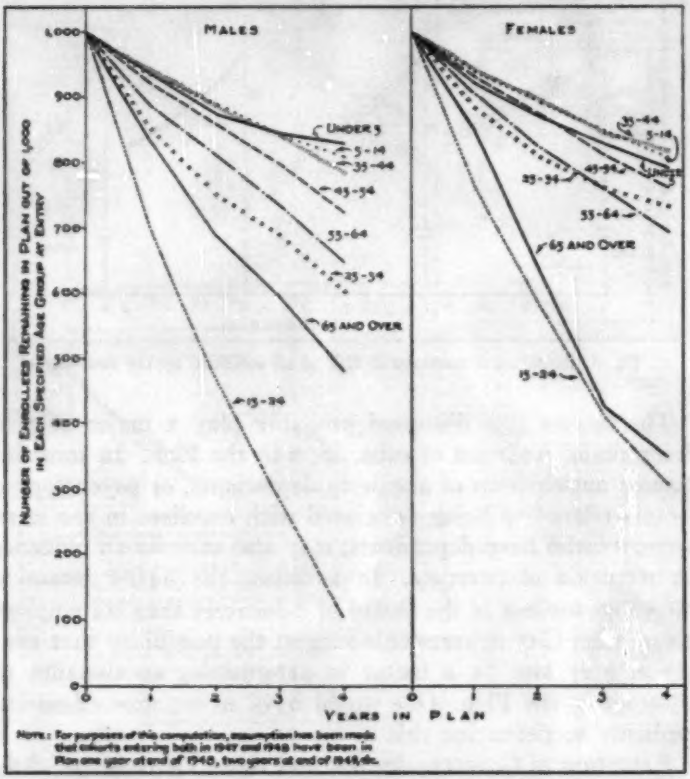

Fig. 6. Retention of coverage in HIP of all enrollees, by sex and age at entry.

age group. The spread of the rates in the ages 35–64 is about the same in the two sexes, the female rates merely being at a higher level.

The lower retention rates of males reflect, in part, the fact that practically all of the enrollees in employee-only accounts are males and, as has been shown, this type of account is characterized by relatively poor retention of coverage.

When attention is focused on age as a factor in retention of coverage, it is seen that children under 15 of both sexes have a

high retention rate as do both men and women in the age group 35–44. These two age groups accounted for nearly half (47.7 per cent) of all enrollees with uninterrupted coverage who had entered HIP prior to January 1, 1951. Family responsibilities are great in the 35–44 age bracket and this undoubtedly is reflected in the high retention rate of this group.

Retention of coverage in HIP decreases successively in the three age groups 45–54, 55–64, and 65 and over. Of course, this is expected to some extent due to the increasing force of mortality. The retention rates, at the end of four years, for these three age groups in males are, respectively: 724, 647, and 480. When these rates are recomputed to exclude estimated losses from death,[18] the corresponding figures are: 757, 724, and 608. Similar, although slightly smaller, changes are effected in the retention rates for females of these ages through the exclusion of deaths. Exclusion of deaths has practically no effect on the retention rates between the ages of 5 and 44. The HIP survivorship rates, with deaths excluded, are shown in Fig. 7. (Appendix Table H). Although exclusion of deaths raises the retention rates from age 45 on, there is still a decrease with advancing age but not as great as before. This trend may represent a combination of several factors. In the age group 65 and over, persons retire from covered employment and their retirement income may not be sufficient to permit them to pay the full premium themselves even though they have the privilege of doing so. As a result, the retention rate is low. Similar factors may operate, though with less force, in the age group 55–64 particularly in the Fire and Police Departments where early retirement is permitted.

It may also be that the trend toward lower HIP retention rates with advancing age reflects in part a greater likelihood of

[18] This adjustment was made by adding the number of deaths to be expected in each age group to the observed number of survivors and recalculating the survivorship rates. The expected deaths were calculated based upon Life Tables for 1949–1951, Middle Atlantic Division, VITAL STATISTICS SPECIAL REPORTS, Vol. 41, No. 4, July 26, 1956.

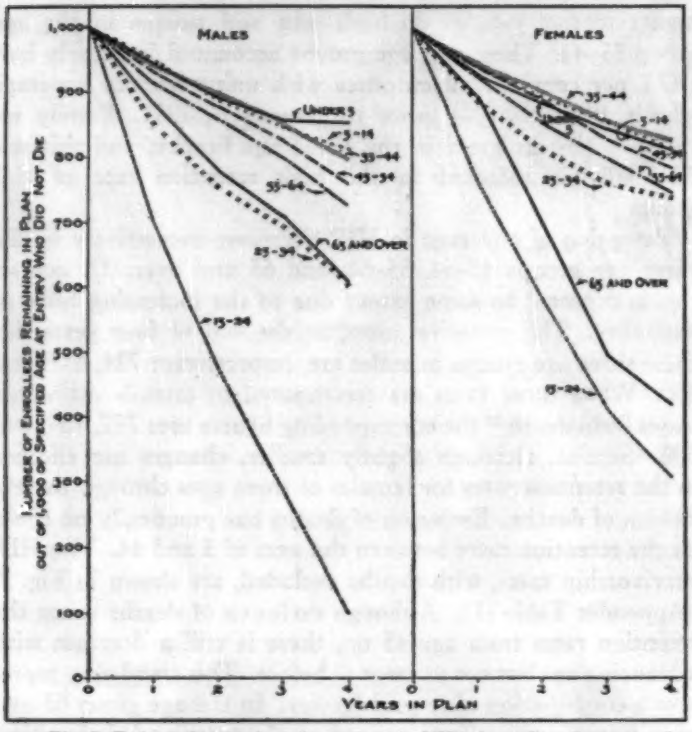

Fig. 7. Estimated retention of coverage in HIP of enrollees by age and sex, with expected deaths excluded.

an older person having established medical contacts prior to entrance to HIP which he wishes to maintain.

Finally, it may be that in some instances the trend reflects the fact that the older a person is the more likely he is to have a chronic disease. If this chronic disease incapacitates him to the point of not being able to continue in his job, his income is sharply reduced, he cannot continue his premium payments and he loses his coverage in the Plan. It is not known to what extent this is so, but if the situation arises with any frequency it is a matter which should be of considerable concern to the community since such persons are very likely to become charges

upon the community in one way or another. From the standpoint of the community planner it is clearly desirable to have more data on the magnitude of this problem.

The low retention rate of enrollees 15–24 represents a special situation. To meet Insurance Department regulations children who reach age 18 are no longer carried as dependents. Such an enrollee is said to have reached "maturity" and is no longer covered by the parent's enrollment. Like the enrollee 65 or over, the 18 year old may convert to individual coverage by paying the entire premium but this is an age when illness rates are low and the inducement to remain in the Plan is not great. Also some of these young persons may be attending schools which provide at least some medical services.

The lower retention rate of persons 25–34 in comparison with those 35–44 may be accounted for by a higher proportion of single persons and relatively lower incomes and illness rates in the younger group.

Retention of Subscribers by Size of Covered Unit. In the previous discussion of retention of coverage and family status it was noted that subscribers with dependents have a better retention rate than those without dependents. In Fig. 8 (Appendix Table I) the retention of subscribers in family accounts is examined further in relation to the number of dependents covered.

It is clear that among the younger group of subscribers, the greater the number of dependents the more likely it is that the subscriber will remain in HIP throughout the four-year period. Thus among those with three or more dependents, 84.5 per cent were still in the Plan four years later. The corresponding figures for those with two, one, and zero dependents covered were 75.5, 70.4, and 66.0 per cent respectively. These variations in per cent retaining membership probably reflect similar variations by size of family in the need for obstetric and pediatric services.

In contrast to the experience of younger subscribers, the chance of a subscriber 45 years of age or older remaining in the

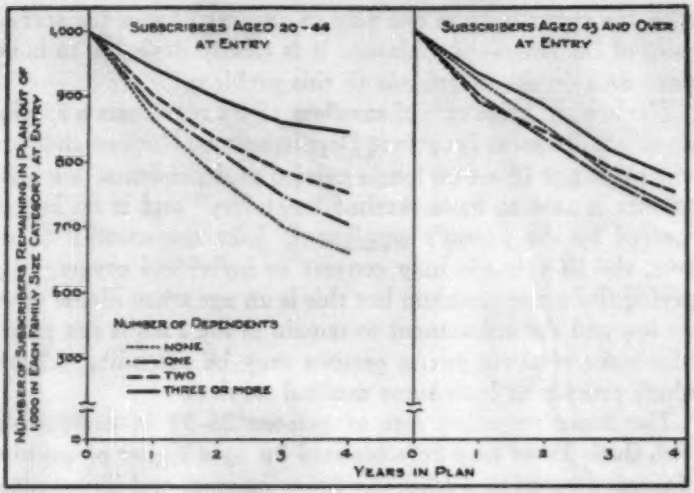

Fig. 8. Retention of coverage by HIP subscribers under family contract by age and by number of covered dependents at entry.

Plan over the four year period varies very little in relation to the number of covered dependents. The highest retention rates are still observed among those with the greatest number of dependents, but the excess over that of subscribers with fewer dependents is not nearly as marked as among subscribers 20–44 years old. It may be hypothesized that the pattern of retention of coverage in the Plan of the older subscriber is conditioned primarily by the needs of persons in his age group rather than by the medical care needs of other members of his family.

It has been previously noted that subscribers *without covered dependents* enrolled in family accounts are more likely to remain in the Plan than subscribers in employee-only contracts. A comparison of Fig. 8 with Fig. 4 shows this statement to be true regardless of whether the former group of subscribers is under or over 45 years of age. In other words, this difference between the class of subscribers without covered dependents apparently is not due to any influence of age on the survivor-

ship pattern. It is more likely related to factors such as job stability or to the fact that the subscriber in the employee-only account may be subjected to the influence, implicit or explicit, of the members of his family who receive their medical care outside the Plan. Presumably the subscriber without dependents enrolled under the family contract is not exposed to these forces.

The patterns of retention of coverage in relation to the size of the covered unit which have just been discussed are essentially the same in each of the four cohorts classed by year of entry (Appendix Table J) namely, that retention is greatest among subscribers with the greatest number of dependents. The variation in retention of coverage among the different cohorts is largely due to the different class of accounts entering in different years which has previously been discussed.

Experience with Conversions. At the present time initial enrollment in most medical care plans is largely on a group basis. However, persons leaving an enrollment group because of job change, retirement or similar reasons are permitted in some instances to convert their enrollment to an individual policy with more limited coverage. In HIP, all enrollees have the privilege of conversion to an individual policy with the same coverage as they previously had. Although the premium rate in HIP for such individual policies is only slightly higher than for the group policy, conversion for most enrollees usually means that they have to meet the entire premium themselves, including the portion formerly paid by an employer or by a union health and welfare fund.

Of the total persons in the Plan at the end of 1951, 3.5 per cent had converted to individual contracts. This low figure may suggest that conversions are of relatively little importance. However, the conversion privilege assumes a different significance when it is realized that through the conversion mechanism, the aged and other segments of the population faced with extraordinary health needs have an opportunity to remain insured. Accordingly, the conversion privilege may be of con-

Year	Family Coverage		Employee Only Coverage	
	Listed for Termination	Per Cent Converting	Listed for Termination	Per Cent Converting
1948	734	15.8	197	4.1
1949	1,444	17.7	188	4.8
1950	2,175	16.0	121	3.3
1951	1,779	25.4	336	1.8

Table 2. Enrollees listed for termination, and per cent converting, by type of contract.

siderable importance to the individual, the medical care plan, and the community at large. It is for this reason that the following data are presented on the probability of converting and of retaining coverage after conversion.

Influence of Type of Contract on the Chance of Converting. The chance of converting among those initially enrolled under family contracts as compared with those originally enrolled under employee-only contracts is shown in Table 2. Clearly the former group are far more likely than the latter to exercise the conversion privilege if they are listed for termination. It seems reasonable to suppose that this reflects an anticipated need for medical care for dependents on the part of those originally enrolled under the family contract. However, other factors may also play some part in bringing about the observed differential in conversion rate. Initial enrollment conditions in the two types of coverage are quite different. Employee-only contracts were in large part those of unions which automatically covered their memberships and paid the entire premium. In the case of people with family coverage, however, individual decisions had to be made to join HIP and the subscriber himself usually paid at least half the premium. This personal participation in the initial decision to enroll may account for a part of the difference in conversion rates. Another part may be due to a lower economic position of enrollees in employee-only accounts. In any event, as is detailed later, the presence of dependents in the family exercises an important influence on the

chance of converting to individual contracts if the need arises.

Influence of Age and Sex on the Chance of Converting. Women subscribers are much more likely to convert than men subscribers when they are no longer eligible for group enrollment. (Table 3). The difference is greatest in the 20–44 age group although it is still large in the 45–65 age group. Part of the difference reflects the fact that there are more male employees in the employee-only type of contract but it is also likely that the high conversion rate of females in the young age group reflects a need for maternity and pediatric services in the family.

Finally, it must be remembered that a large proportion of female *subscribers* are employees of the Board of Education. The rules of the Board of Education may, therefore, influence the per cent converting. Teachers on maternity or sabbatical leave must convert or lose coverage for the duration of the leave. They may then return to group enrollment.

Though the numbers in the age group 65 and over are small

Table 3. Subscribers listed for termination, each year, 1948–1951, per cent converting, by age and sex.

Age and Sex	Listed for Termination				Per Cent Converting			
	1948	1949	1950	1951	1948	1949	1950	1951
All Ages	485	726	988	1,031	10.5	14.3	13.5	15.6
Males	345	539	667	771	6.7	8.5	8.5	8.6
Females	140	187	321	260	20.0	31.0	23.7	36.5
20 to 44	259	399	615	628	13.5	15.1	16.3	19.1
Males	160	267	371	428	8.2	8.2	7.8	9.8
Females	99	132	244	200	21.2	32.6	26.2	39.0
45 to 64	171	271	302	308	6.4	10.0	9.9	7.8
Males	136	227	238	263	3.7	7.0	8.4	4.6
Females	35	44	64	45	*	25.0	15.6	26.7
65 and Over	37	37	49	62	*	*	16.3	25.8
Males	35	32	46	55	*	*	17.4	21.8
Females	2	5	3	7	*	*	*	*

* Percentage not calculated; base less than 40.

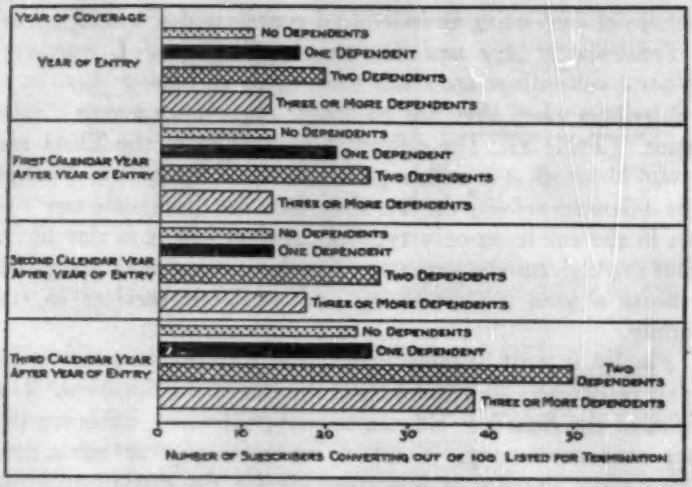

Fig. 9. Conversions to individual policies by subscribers under family contract by number of covered dependents and length of coverage of subscribers.

the conversion rate in this group would appear to be high, probably reflecting a foreseen need for medical care.

Influence of Size of Family and Length of Coverage on the Chance of Converting. In family contracts, the subscriber with two dependents is more likely to maintain coverage in the Plan through conversion than the subscriber in smaller or larger families (Fig. 9, Appendix Table K). This appears to be true irrespective of the length of coverage. One would like to examine the data further by age as well as size of family but the material is too limited to permit this.

Within families in which the subscriber has two dependents the chance of a subscriber converting increases with the length of his prior coverage. A similar trend appears to be present among subscribers in larger families though there is little difference between the chance of converting in the year of entry and the succeeding year.

The picture for subscribers with no dependents and those with one dependent is not quite as clear but the conversion

rates in the third calendar year after entry do seem to be higher than in previous years. It would appear that in each size family there is a tendency for the conversion rate to increase the longer the prior coverage and that this tendency is stronger where there are two and three or more dependents than in smaller families.

The subscriber who covers only himself is more likely to convert if he is covered under a family contract than under an employee-only contract. For the former group the chance is approximately 15 per cent (Fig. 9) and for the latter not more than 5 per cent (Table 2). This difference reflects a combination of factors among which are the presence of a purely individual decision to join HIP in the first place and the privilege under the family contract of covering eligible dependents if and when they are acquired.

Class of Account and the Chance of Converting. Of the several classes of accounts, subscribers in the Board of Education had a considerably higher rate of conversion when listed for termination than any other (Table 4). Employees of the Board of Education are largely teachers. It is of interest that the study of Health and Medical Care in New York City (*op. cit.* p. 4) showed that in HIP the proportion of persons seeing a doctor in a year was greatest in those households in which the education of the head of the household was greatest. It was suggested that this might be due to a different concept of illness

Table 4. Percentage of subscribers listed for termination who convert, by class of account and length of coverage.

Class of Account	Subscribers Listed for Termination			Per Cent Converting		
	1st Calendar Year After Year Of Entry	2nd Calendar Year After Year Of Entry	3rd Calendar Year After Year Of Entry	1st Calendar Year After Year Of Entry	2nd Calendar Year After Year Of Entry	3rd Calendar Year After Year Of Entry
N.Y.C., Board of Education	134	154	86	37.3	21.4	37.2
N.Y.C., Dept. of Sanitation	74	56	40	13.5	19.6	10.0
N.Y.C., Transportation	206	120	—	5.3	10.0	—
N.Y.C., Other	246	173	87	19.9	15.6	34.5
Union and Trustee Accounts	183	97	212	5.5	1.0	0.9
Other Accounts	182	104	26	14.3	12.5	11.5

in the better educated household. If this is true, it may also influence the rate of conversion by Board of Education subscribers.

A high proportion of Board of Education subscribers are females and it was previously shown that a greater proportion of these convert than do males. The possible reasons for this were previously discussed.

Table 4 demonstrates once again that there is considerable variation by class of account. Though there is no clear trend in the conversion rate with length of prior coverage, accounts with initially high conversion rates tend to continue with high rates and similarly for accounts with low initial conversion rates. This suggests that the rate of conversion is tied to the characteristic of the account and is not greatly influenced by experience with the Plan. To test this hypothesis would require a longer period of observation and, since in the previous section there is a suggestion that the probability of conversion increases with time in the larger size families, a more detailed analysis would be necessary to take into account such factors as family size.

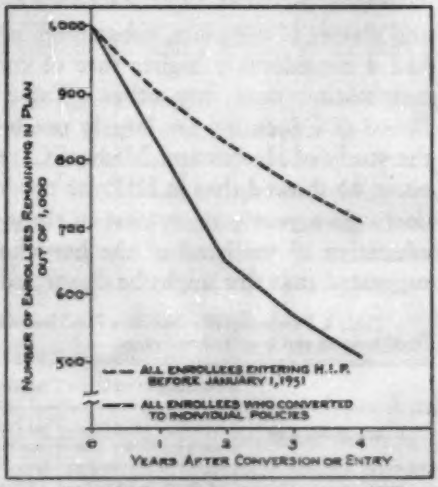

Fig. 10. Retention of coverage in HIP after conversion to individual policy and of all enrollees.

Retention of Membership by Enrollees Who Convert. Having considered the factors influencing the chance of converting from a group to an individual policy, we now turn to consider how long persons who have exercised the privilege of converting retain their membership in the Plan. This question is of particular

interest since all who convert assume responsibility for full payment of premiums.

Since the primary decision to convert is usually that of the subscriber it would be desirable to limit the analysis to *subscribers* rather than all enrollees but the sample available for study does not yield cohorts of subscribers large enough for reliable results. Accordingly, the following discussion is in terms of enrollees rather than subscribers.

The chance of a convertee remaining in the Plan after conversion is shown in Fig. 10 (Appendix Tables D and L). It is clearly very much less than that of enrollees in general. By the time the third enrollment year after conversion has been reached almost half of the enrollees who converted had lost their status in the Plan.

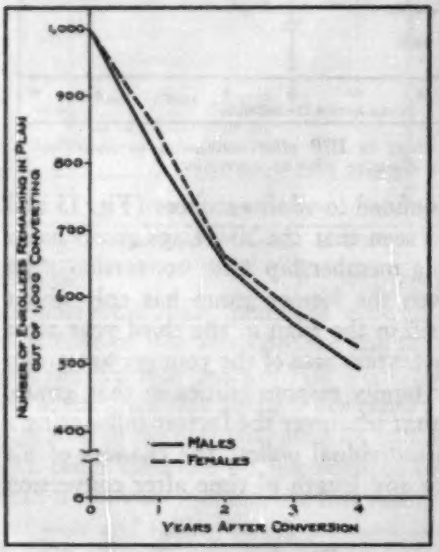

Fig. 11. Retention of coverage in HIP after conversion to individual policy, by sex.

Generally speaking, females who convert remain in the Plan slightly longer than males (Fig. 11 and Appendix Table L) though the difference is not very great.

When length of prior coverage as well as sex is taken into consideration (Fig. 12 and Appendix Table L) it appears that females with at least six months of prior coverage retained membership somewhat longer than those who had been in the Plan less than that length of time when they converted. No consistent pattern is observed for males. In either case the numbers on which the rates are based are small.

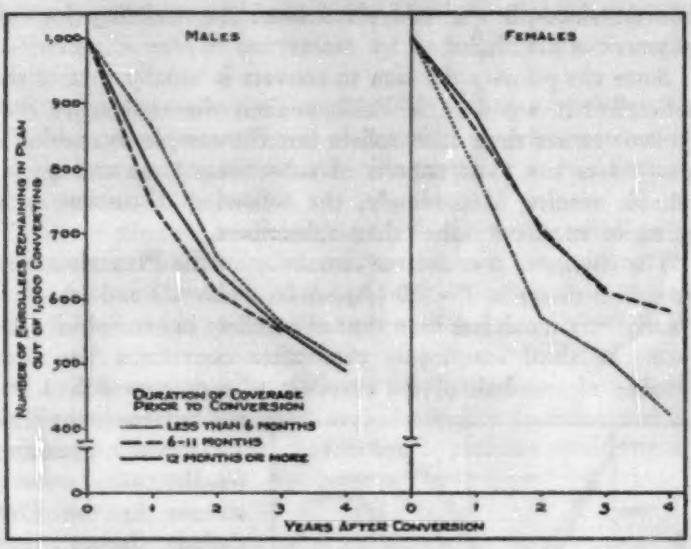

Fig. 12. Retention of coverage in HIP after conversion to individual policy, by sex and duration of coverage prior to conversion.

When the analysis is confined to adult enrollees (Fig. 13 and Appendix Table M), it is seen that the 20–44 age group has a better chance of retaining membership after conversion than the 45–64 group, but even the former group has only about 600 out of every 1,000 still in the Plan in the third year after conversion. The higher retention rate of the younger age group probably reflects greater family responsibilities in that group.

In general, it appears that whatever the factors influencing a person to convert to an individual policy, the chances of his retaining his coverage for any length of time after conversion are not very great.

Summary and Discussion

Any medical care plan is subject to a natural attrition of its membership. People change jobs, moving from an industry covered by the plan to one which is not covered or which has some other type of coverage. Others move out of the area of

coverage. Still others retire and cannot afford to pay the entire premium themselves. Families are broken by divorce and no longer continue their coverage. Whole contracts are lost through a variety of circumstances, and, of course, there is an attrition resulting from mortality. In addition to these "involuntary" losses, enrollees may leave the plan because of dissatisfaction with the service they have received or because they see no immediate or pressing need for medical care or because they do not understand the framework in which the medical care is rendered. Whatever the reason, it is obviously desirable from many points of view to have some idea of the magnitude of this attrition and the factors influencing it.

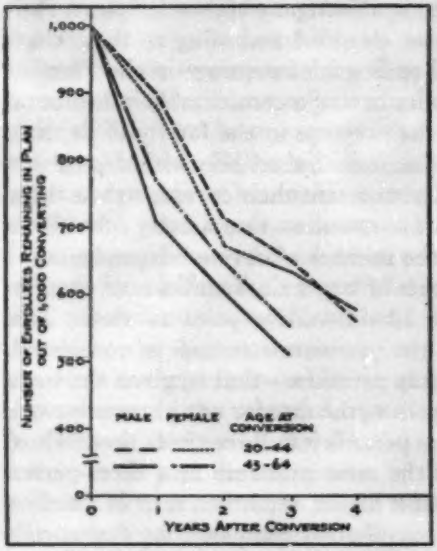

Fig. 13. Retention of coverage in HIP after conversion to individual policy, by age and sex.

In the first four years of HIP's operation the average annual loss of enrollees was about 9 per cent.[14] The fact that the loss is greatest in the first year after an enrollee enters the Plan may have some influence on retention of coverage. However, the trend is not very marked, the loss rate being 9.7 per cent in the first year and falling to 7.2 per cent in the fourth year. This suggests that the particular nature of any given cohort may play at least as important a part in determining retention of coverage as experience with the Plan. The stability of employ-

[14] It should be remembered that this figure is largely determined by the experience of employees of the City of New York, who constituted a high proportion of the enrollment.

ment, the age and sex composition of the cohort, and other characteristics not directly under the control of the Plan itself may be of prime importance in this connection.[15] Certainly the material examined earlier in this report shows far more variation in the retention rates classified according to these characteristics than in regard to length of coverage in the Plan.

Among the characteristics having a considerable influence on retention of coverage is the presence in the family of dependents who are covered by the Plan. Subscribers with dependents in the Plan are more likely to retain their coverage than those without dependents and the retention rate among subscribers under 45 increases with the number of covered dependents.

The greater retention rate of larger size families is of particular significance from the administrative point of view. This becomes apparent when the premium structure is considered. In HIP, there is a three-step premium—that is, given the basic annual premium for one person, the rate for two persons is twice that, but for three *or more* persons it is three times that. Thus, a six-person family pays the same premium as a three-person family. It follows that the higher retention rate of families with dependents may, if not offset by compensating new enrollment, result in an increasing proportion of families of size four or more in the Plan with a consequent reduction in premium income *per enrollee*. If this were to happen some change in either the base premium or the premium structure would be necessitated for the Plan to remain solvent. It is clearly important, therefore, for the Plan to have up-to-date data on the family size composition of its covered population.

In our society the family is the basic social unit. The problems of one member of the family become the problems of the family as a whole. It is of particular interest, therefore, that the highest retention rates are found where the family is covered and that these rates increase with the number of dependents. The benefits of medical care are most likely to accrue

[15] It would be desirable to have data on the reasons for leaving HIP, but such data are not available in the normal records of the Plan.

when continuity of coverage is provided and the family situation itself increases the likelihood that such continuity will be provided.

A second factor playing an important role in retention of coverage is type and stability of employment. In HIP, enrollees who are employees of the City of New York have higher retention rates than enrollees who are members of various union welfare funds or employees of small private businesses or organizations. Both the union accounts and the small private accounts have less stable conditions of employment than the New York City departments. The higher retention rates for City enrollees still hold when comparison is restricted to *subscribers without dependents* who are employees of the City and subscribers in the Union and Trustee or the "Other" accounts; the higher retention rates of City employees are therefore not merely a reflection of the influence of covering dependents. In the case of the small private organizations and businesses ("Other Accounts") the fact that many of the enrollees must pay the entire cost of the premium, in contrast with the City departments where the subscriber pays only half the cost, is another factor which can be expected to influence the retention rates unfavorably.

It is of interest that the development of insurance programs for medical care has taken place almost entirely during a period of a rising economy when employment has been high. Should the economy suffer a severe set-back with rising unemployment and insecurity of job status, retention of coverage might drop sharply with serious consequences for plans with enrollment concentrated in one or two types of employment. Such a situation could be of particular concern to union welfare programs.

The relation of stability of employment to retention of coverage for medical care should also be of concern to those responsible for community planning. In the past, during periods of major unemployment, relatively few individuals would have previously been covered by medical care insurance. This is no longer the case and the significance of this for long range

planning on the part of community welfare and health agencies deserves considerable thought.

Age is another determinant of the retention rate. In HIP retention of coverage decreases with advancing age, the rates, after allowance for mortality, being higher under 45 than over that age. Not only does the over-all chance of retaining coverage change with age, but should a person leave covered employment because of job changes, retirement, or similar reasons the chance of his retaining his coverage by converting from a group to an individual policy also varies. The per cent of individuals who take advantage of this conversion privilege when listed for termination under a group policy is about 15 per cent for those 20–44, falls to about 10 per cent for those 45–64, and rises again to about 20 per cent among persons 65 and over. Finally, retention of coverage *after* having converted to an individual policy is greater in the 20–44 age group than in the 45–64 group.

When age and family size are considered together, it is found that retention rates among subscribers under 45 increase with the number of dependents covered, but among subscribers above that age retention rates did not increase nearly as markedly with the number of dependents. This suggests that, other things being equal, retention of coverage under 45 is a function of the needs of the family as a whole, but over 45 the retention rate is conditioned largely by the needs of individuals in that age group.

In view of the increasing health needs of older persons, particularly in the area of chronic illness, the foregoing observations are of particular interest. It may be that in HIP older enrollees are more likely to have medical contacts prior to joining HIP and the lower retention rate reflects a desire to maintain these contacts. On the other hand, it may be chronic illness itself which results in a lower retention rate among older persons, especially when the illness makes it impossible for them to continue in their jobs and thereby reduces their capacity to continue premium payments even if they should wish

to convert to individual policies. Thus, the individual may be deprived of a resource by the very condition with which the resource was designed to cope. From the community standpoint the result may well be a deteriorating social and economic situation ending in economic and/or medical dependency.

While there are no direct observations in this report on the role of education as a factor influencing retention of coverage, the fact that enrollees who are employees of the Board of Education have the highest retention rates of any New York City department and that if they are listed for termination, they also have the highest percentage who convert to individual enrollment, is evidence that education is of importance. These findings agree with those in the report on "Health and Medical Care in New York City" which, through household interviews, found that utilization of medical care facilities was greatest among those with most education.

The foregoing discussion has attempted to show that facts on retention of coverage in a medical care plan are of significance from many points of view. As new patterns of insurance against the costs of medical care emerge and new organizational patterns evolve for providing such care, it will be of importance to assess the effects of these new patterns on retention of coverage not only from the standpoint of the particular program, but also from the broader standpoint of the community as well. It is to be hoped that additional data on enrollment experience will be forthcoming from a variety of situations in the future.

Appendix Table A. Enrollees[1] entering HIP before January 1, 1951, classified by year of entry, age at entry and sex.

Age at Entry and Sex	Number of Enrollees					Percentage of Enrollees				
	Total	Year of Entry				Total	Year of Entry			
		1947	1948	1949	1950		1947	1948	1949	1950
All Ages	27,130	6,675	5,020	10,895	4,540	100.0	100.0	100.0	100.0	100.0
Males	14,303	3,352	2,868	5,791	2,292	52.7	50.2	57.1	53.2	50.5
Females	12,827	3,323	2,152	5,104	2,248	47.3	49.8	42.9	46.8	49.5
Under 5	2,991	487	343	1,361	800	11.0	7.3	6.8	12.5	17.6
Males	1,573	273	166	730	404	5.8	4.1	3.3	6.7	8.9
Females	1,418	214	177	631	396	5.2	3.2	3.5	5.8	8.7
5–14	4,187	998	682	1,958	549	15.4	14.9	13.6	18.0	12.1
Males	2,144	511	350	996	287	7.9	7.6	7.0	9.2	6.3
Females	2,043	487	332	962	262	7.5	7.3	6.6	8.8	5.8
15–24	2,321	399	448	980	494	8.6	6.0	8.9	9.0	10.9
Males	971	184	191	399	197	3.6	2.8	3.8	3.7	4.4
Females	1,350	215	257	581	297	5.0	3.2	5.1	5.3	6.5
25–34	4,836	826	703	2,195	1,112	17.8	12.4	14.0	20.1	24.5
Males	2,338	336	357	1,095	550	8.6	5.0	7.1	10.0	12.1
Females	2,498	490	346	1,100	562	9.2	7.4	6.9	10.1	12.4
35–44	5,784	1,837	1,085	2,148	714	21.3	27.5	21.6	19.7	15.7
Males	3,020	870	602	1,192	356	11.1	13.0	12.0	10.9	7.8
Females	2,764	967	483	956	358	10.2	14.5	9.6	8.8	7.9
45–54	4,114	1,286	992	1,322	514	15.2	19.3	19.8	12.1	11.3
Males	2,375	671	644	792	268	8.8	10.1	12.8	7.3	5.9
Females	1,739	615	348	530	246	6.4	9.2	7.0	4.8	5.4
55–64	2,047	631	548	632	236	7.5	9.4	10.9	5.8	5.2
Males	1,342	379	408	401	154	4.9	5.7	8.1	3.7	3.4
Females	705	252	140	231	82	2.6	3.7	2.8	2.1	1.8
65 and Over	451	118	115	151	67	1.7	1.8	2.3	1.4	1.5
Males	352	94	104	108	46	1.3	1.4	2.1	1.0	1.0
Females	99	24	11	43	21	0.4	0.4	0.2	0.4	0.5
Unknown	399	93	104	148	54	1.5	1.4	2.1	1.4	1.2
Males	188	34	46	78	30	0.7	0.5	0.9	0.7	0.7
Females	211	59	58	70	24	0.8	0.9	1.2	0.7	0.5

[1] Enrollees with interruptions in coverage are omitted.

Appendix Table B. Enrollees[1] entering HIP before January 1, 1951, classified by year of entry, type of contract and family status at end of calendar year of entry.

Type of Contract and Family Status	Number of Enrollees					Percentage of Enrollees				
	Total	Year of Entry				Total	Year of Entry			
		1947	1948	1949	1950		1947	1948	1949	1950
All Enrollees	27,130	6,673	5,030	10,895	4,540	100.0	100.0	100.0	100.0	100.0
Employee Only Contract	1,754	383	873	266	232	6.5	5.7	17.4	2.4	5.1
Family Contract	25,376	6,292	4,147	10,629	4,308	93.5	94.3	82.6	97.6	94.9
Subscriber, No Dependents	3,296	1,056	576	1,018	646	12.1	15.8	11.5	9.3	14.2
Subscriber with Dependents	6,878	1,789	1,114	2,917	1,058	25.3	26.8	22.2	26.8	23.3
Spouse	6,935	1,704	1,133	2,953	1,145	25.6	25.5	22.6	27.1	25.2
Child	8,267	1,743	1,324	3,741	1,459	30.5	26.1	26.4	34.3	32.1

[1] Enrollees with interruptions in coverage are omitted.

Appendix Table C. Procedure used in calculating proportion of a given cohort remaining in HIP a stated period of time after entry.

The example below will illustrate the procedure for the 1947 cohort covered by family contracts. The symbols in the table are defined as follows:

l_x = number present at the beginning of the year

d_x = number terminating during the year

L_x = average number present during the year = $l_x - \frac{d_x}{2}$

(In deriving the survivorship of *all enrollees*, the actual person years of coverage contributed by all persons covered were available and were used as the value of L_x. In deriving survivorship curves for *subscribers only*, the above definition was used.)

$1{,}000\ m_x$ = termination rate = $d_x/L_x \times 1{,}000$

$1{,}000\ p_x$ = the proportion remaining in H.I.P. at the end of year x = $1{,}000\ (1 - m_x)$

$1{,}000\ P_x$ = the retention rate = the proportion of the original cohort remaining in H.I.P. 1, 2, 3 or 4 years later where

$P_1 = p_1$

$P_2 = p_2 \times p_1$

$P_3 = p_3 \times p_2 \times p_1$

$P_4 = p_4 \times p_3 \times p_2 \times p_1$

Example: 1947 cohort with family coverage

Year	l_x	d_x	L_x	*1,000 mx*	*1,000 px*	*1,000 Px*
1948	6,292	354	6,112.5	57.9	942.1	942.1
1949	5,938	240	5,816.5	41.3	958.7	903.2
1950	5,697	417	5,457.2	76.4	923.6	834.2
1951	5,281	213	5,176.5	41.2	958.8	799.8

Thus it is estimated that for every 1,000 enrollees with family coverage in the 1947 cohort, 800 were still in the Plan at the end of 1951.

Note: In the retention of coverage tables which follow only L_x and 1,000 P_x values are shown, except for Appendix Table D, where 1,000 p_x values are also given. In any given instance the 1,000 p_x value for the first year is the same as the 1,000 P_x value; the 1,000 p_x value for the 2nd year can be obtained by dividing 1,000 P_x for the 2nd year by 1,000 P_x for the 1st year; 1,000 p_x for the 3rd year can be obtained by dividing 1,000 P_x for the 3rd year by 1,000 P_x for the 2nd year, etc.

Appendix Table D. Retention of coverage in HIP of (a) all enrollees; (b) enrollees classified by year of entry; (c) enrollees classified by class of account at close of year of entry.

Year of Entry and Class of Account	l_x				1,000 p_x				1,000 P_x			
	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.
(a) All Enrollees	19,946	24,140	18,699	9,065	903	917	923	928	903	828	764	709
(b) Year of Entry												
1947	6,455	6,106	5,707	5,400	934	954	922	955	934	890	821	784
1948	4,038	4,389	3,996	3,665	898	905	913	887	898	812	742	658
1949	7,144	9,740	8,995		901	913	929		901	822	764	
1950	2,309	3,906			831	884			831	734		
(c) Class of Account:												
N.Y.C. Bd. of Education	3,817	4,299	3,554	3,030	954	953	918	956	954	909	834	798
N.Y.C. Dept. of Sanitation	2,404	2,767	2,164	1,499	920	917	932	917	920	834	778	713
N.Y.C. Bd. of Transportation	5,335	6,611	5,662		889	912	940		889	811	762	
N.Y.C. Other	6,015	7,534	5,556	3,404	922	936	932	959	922	862	804	771
Union and Trustee Accounts	1,038	1,168	964	733	807	851	898	713	807	687	617	440
Other Specified Accounts	1,045	1,451	631	306	749	814	748	870	749	610	456	397
Unknown (Conversions in Year of Entry)	2,888	308	165	91	837	795	867	890	837	666	577	513

Appendix Table E. Retention of coverage in HIP of enrollees, by type of contract and date of entry.

Year of Entry and Type of Contract	l_x				1,000 P_x			
	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.
1947								
Employee Only	343	290	251	223	781	668	598	523
Family	6,113	5,817	5,457	5,177	942	903	834	800
1948								
Employee Only	621	708	636	559	813	694	662	438
Family	3,410	3,681	3,334	3,107	913	835	755	700
1949								
Employee Only	151	215	180		755	667	478	
Family	6,994	9,525	8,815		904	826	770	
1950								
Employee Only	126	164			722	457		
Family	2,183	3,742			837	749		

Appendix Table F. Retention of coverage in HIP of enrollees, by type of contract, class of account, and family status (all dates of entry combined).

Type of Contract, Class of Account, and Family Status	Lx				1,000 Px			
	Year of Coverage				Year of Coverage			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Family—N.Y.C., Board of Education								
Subscriber, No Dependents	656	733	615	515	938	885	806	767
Subscriber, with Dependents	1,083	1,205	1,020	890	964	926	859	827
Spouse	1,058	1,195	984	843	958	912	840	804
Child	1,021	1,166	935	782	952	904	821	781
Family—N.Y.C., Dept. of Sanitation								
Subscriber, No Dependents	125	157	120	59	936	859	744	656
Subscriber, with Dependents	689	789	635	461	936	873	826	771
Spouse	678	794	631	452	931	869	826	766
Child	912	1,026	778	526	897	801	733	660
Family—N.Y.C. Board of Transportation								
Subscriber, No Dependents	421	503	430		886	787	734	
Subscriber, with Dependents	1,526	1,860	1,641		892	824	783	
Spouse	1,514	1,869	1,621		892	825	783	
Child	1,875	2,380	1,970		885	795	735	
Family—N.Y.C., Other								
Subscriber, No Dependents	954	1,139	851	605	936	860	796	752
Subscriber, with Dependents	1,641	2,020	1,524	977	928	879	824	797
Spouse	1,626	2,033	1,518	958	924	872	820	795
Child	1,796	2,343	1,663	864	905	840	775	733
Family—Other Accounts								
Subscriber, No Dependents	241	327	124	51	635	534	357	294
Subscriber, with Dependents	197	295	127	66	832	691	478	420
Spouse	195	293	127	64	774	632	453	396
Child	192	313	138	69	839	691	540	478
Employee Only—Union and Trustee	1,020	1,147	948	723	809	688	618	439
Employee Only—Other Accounts	219	223	115	56	699	515	457	400

Appendix Table G. Retention of coverage in HIP of enrollees, by sex and date of entry.

Year of Entry and Sex	Lx				1,000 Px			
	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.
1947								
Males	3,231	3,039	2,836	2,671	925	880	810	769
Females	3,225	3,067	2,872	2,729	942	901	832	799
1948								
Males	2,285	2,491	2,269	2,072	888	802	737	634
Females	1,753	1,898	1,727	1,594	911	825	747	688
1949								
Males	3,809	5,180	4,764		902	822	760	
Females	3,335	4,559	4,232		900	822	768	
1950								
Males	1,159	1,951			824	718		
Females	1,149	1,955			837	750		

Appendix Table H. Retention of coverage in HIP of enrollees by age and sex (all dates of entry combined)— observed and with estimated deaths excluded.

Age and Sex	Lx				1,000 Px, Observed				1,000 Px, Excluding Estimated Deaths[1]			
	1st Year	2nd Year	3rd Year	4th Year	1st Year	2nd Year	3rd Year	4th Year	1st Year	2nd Year	3rd Year	4th Year
Males												
Under 5	998	1,464	1,042	392	937	877	839	830	943	890	856	853
5–14	1,640	1,981	1,641	750	933	887	843	808	934	888	845	810
15–24	626	673	374	85	700	475	286	104	701	477	287	105
25–34	1,509	1,993	1,409	480	850	751	690	601	851	754	693	605
35–44	2,337	2,793	2,353	1,251	937	889	841	785	941	896	851	797
45–54	1,903	2,147	1,778	1,039	921	857	795	724	932	876	822	757
55–64	1,072	1,173	941	568	886	810	733	647	912	857	798	724
65 and Over	270	282	210	123	830	689	597	480	881	775	711	608
Females												
Under 5	901	1,306	912	337	922	872	830	793	927	881	844	811
5–14	1,553	1,896	1,588	708	941	893	852	810	941	893	853	812
15–24	882	1,022	591	160	763	583	413	310	764	584	414	311
25–34	1,680	2,208	1,617	668	885	811	758	734	886	813	761	738
35–44	2,215	2,566	2,133	1,245	941	895	847	818	944	900	854	826
45–54	1,415	1,593	1,286	789	934	876	812	763	941	888	829	783
55–64	580	623	497	302	909	824	760	697	924	853	799	746
65 and Over	75	76	46	17	853	640	432	354	888	697	495	422

[1] Estimated mx from deaths for each age-sex group were computed from "Life Tables for 1949–1951, White Males and Females, Middle Atlantic Division" (Tables 5 and 6, Vital Statistics Special Reports, 41, No. 4, pp. 84–87). These values were then subtracted from the observed mx values, and 1,000 px and 1,000 Px values computed to exclude the estimated deaths.

Appendix Table I. Retention of coverage in HIP of subscribers under family contract, by age and sex of subscriber and number of covered dependents at entry (all dates of entry combined).

Age of Subscriber at Entry, Sex, and Number of Dependents Covered at Entry	L_x[1]				1,000 P_x			
	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.
20–44								
All Size Families	4,012	5,500	4,242	1,968	895	826	767	736
Males	2,760	3,939	3,106	1,187	902	833	787	763
Females	1,253	1,570	1,118	782	881	809	717	677
No Dependents	1,343	1,807	1,299	667	863	773	699	660
Males	617	885	653	220	865	766	696	652
Females	726	922	647	448	861	780	701	665
One Dependent	828	1,122	857	390	884	816	746	704
Males	532	762	594	205	874	814	754	710
Females	297	370	263	184	899	819	728	689
Two Dependents	754	1,038	804	389	901	832	783	755
Males	630	889	689	301	895	821	777	764
Females	123	149	115	89	927	895	817	734
Three or More Dependents	1,088	1,534	1,283	524	941	895	857	845
Males	981	1,403	1,171	462	944	896	871	862
Females	106	131	94	62	915	894	674	652
45 and Over								
All Size Families	2,628	3,378	2,747	1,585	911	850	782	735
Males	1,968	2,605	2,129	1,094	903	839	772	724
Females	658	773	618	491	936	883	813	768
No Dependents	896	1,104	885	581	922	856	780	730
Males	437	556	455	247	904	829	754	702
Females	459	548	430	334	939	882	804	756
One Dependent	1,096	1,424	1,149	625	902	834	770	721
Males	943	1,252	1,007	507	896	826	760	708
Females	151	172	142	119	934	885	835	800
Two Dependents	284	374	315	175	891	845	789	753
Males	252	337	284	151	893	845	788	752
Females	32	37	31	25	875	851	796	764
Three or More Dependents	352	477	399	204	932	883	816	776
Males	337	460	384	191	929	882	813	775
Females	16	18	15	14	*	*	*	*

[1] The L_x figures have been computed independently for both sexes, for males, and for females; it is for this reason that the total for both sexes does not always equal exactly the sum for males and females.

* Rates not computed because of low frequencies.

Appendix Table J. Retention of coverage in HIP of subscribers under family contract, by number of covered dependents at entry and date of entry.

Date of Entry, and Number of Covered Dependents at Entry	L_x				1,000 P_x			
	1948	1949	1950	1951	1948	1949	1950	1951
1947								
All Subscribers	2,747	2,631	2,499	2,365	949	916	853	819
No Dependents	1,058	1,004	946	889	940	898	832	791
1 Dependent	799	762	721	679	944	909	841	803
2 Dependents	395	382	367	350	954	932	879	848
3 Dependents	356	348	333	319	972	952	889	873
4 or More Dependents	140	136	133	129	964	950	914	893
1948								
All Subscribers	1,145	1,506	1,384	1,271	898	836	751	702
No Dependents	396	513	457	407	866	790	674	619
1 Dependent	327	428	393	356	872	813	728	662
2 Dependents	187	250	237	225	963	909	859	817
3 Dependents	160	215	203	192	938	894	832	798
4 or More Dependents	76	101	95	92	934	887	831	831
1949								
All Subscribers		2,233	3,510	3,245		885	807	752
No Dependents		602	937	848		879	785	712
1 Dependent		653	1,018	932		866	778	720
2 Dependents		368	576	534		842	769	720
3 Dependents		380	610	579		947	890	853
4 or More Dependents		230	370	353		922	877	837
1950								
All Subscribers			677	1,438			776	682
No Dependents			265	554			724	610
1 Dependent			183	380			830	747
2 Dependents			105	228			771	684
3 Dependents			87	193			816	752
4 or More Dependents			38	84			790	714

Appendix Table K. Percentages of subscribers under family contract listed for termination who convert in successive years of coverage, by age of subscriber at entry and number of covered dependents at termination or end of specified year.

Number of Covered Dependents at Termination or End of Calendar Year Specified, and Age of Subscriber at Entry	Year of Entry		1st Calendar Year after Year of Entry		2nd Calendar Year after Year of Entry		3rd Calendar Year after Year of Entry	
	Listed for Term.	Per Cent Converting	Listed for Term.	Per Cent Converting	Listed for Term.	Per Cent Converting	Listed for Term.	Per Cent Converting
All Subscribers	770	14.4	781	17.7	600	16.3	230	29.1
Under 20	5	*	3	*	7	*	0	
20–44	498	17.3	501	19.6	345	19.1	115	34.8
45–64	217	6.0	221	14.0	208	11.1	91	18.7
65 and Over	37	24.3	41	19.5	31	29.0	18	50.0
Unknown	13	*	13	6.7	9	*	6	*
No Dependents	301	11.0	302	13.6	235	13.6	97	23.7
Under 20	3	*	3	*	6	*	0	
20–44	199	10.1	192	13.0	124	12.9	44	20.5
45–64	74	8.1	82	14.6	83	10.8	39	20.5
65 and Over	18	27.8	19	21.1	16	43.8	10	*
Unknown	7	*	6	*	6	*	4	*
One Dependent	231	16.5	237	21.1	176	13.6	82	25.6
Under 20	2	*	0		1	*	0	
20–44	123	22.8	116	27.6	78	12.8	30	30.0
45–64	87	5.7	95	14.7	82	14.6	42	19.0
65 and Over	18	22.2	21	14.3	15	13.3	8	*
Unknown	1	*	5	*	0		2	*
Two Dependents	132	19.7	123	25.2	98	26.5	30	50.0
Under 20	0		0		0		0	
20–44	100	26.0	98	27.6	78	32.1	26	53.8
45–64	30	*	23	13.0	18	5.6	4	*
65 and Over	1	*	1	*	0		0	
Unknown	1	*	1	*	2	*	0	
Three or More Dependents	106	13.2	119	13.4	91	17.6	21	38.1
Under 20	0		0		0		0	
20–44	76	15.8	95	14.7	65	23.1	15	53.3
45–64	26	7.7	21	9.5	25	4.0	6	*
65 and Over	0		0		0		0	
Unknown	4	*	3	*	1	*	0	

* Percentage not computed because of low frequency.

Appendix Table L. Retention of coverage in HIP of enrollees who convert (over-all retention and retention on conversion status), by sex and duration of coverage prior to conversion.

Duration of Coverage Prior to Conversion and Sex	L_x				1,000 P_x			
	Year of Conversion	Year After Conversion			Year of Conversion	Year After Conversion		
		1st	2nd	3rd		1st	2nd	3rd
	Over-all retention of coverage							
All Persons	379	661	304	101	828	653	569	507
Less Than 6 Months Prior Coverage	123	207	93	35	829	615	537	461
6–11 Months Prior Coverage	71	140	66	36	802	659	579	531
12 or More Months Prior Coverage	185	315	145	30	838	673	585	525
Males	187	325	148	50	807	646	558	491
Less Than 6 Months Prior Coverage	59	101	45	19	865	668	563	502
6–11 Months Prior Coverage	36	66	29	15	747	611	549	*
12 or More Months Prior Coverage	92	158	74	17	794	643	556	490
Females	192	337	156	51	849	660	580	523
Less Than 6 Months Prior Coverage	63	106	49	17	795	570	511	419
6–11 Months Prior Coverage	35	74	37	22	858	707	610	582
12 or More Months Prior Coverage	93	157	71	13	882	702	613	*
	Retention of coverage on conversion status (without return to group enrollment)							
All Persons	370	580	245	70	830	638	544	458
Less Than 6 Months Prior Coverage	121	171	71	24	842	591	516	409
6–11 Months Prior Coverage	70	124	51	25	800	639	539	474
12 or More Months Prior Coverage	179	285	123	20	833	663	561	479
Males	182	283	118	35	808	631	535	442
Less Than 6 Months Prior Coverage	58	83	35	14	880	646	554	*
6–11 Months Prior Coverage	35	58	21	9	743	589	505	*
12 or More Months Prior Coverage	89	143	62	12	787	632	530	445
Females	188	297	127	35	851	644	553	474
Less Than 6 Months Prior Coverage	62	88	36	11	807	541	481	*
6–11 Months Prior Coverage	35	66	30	17	857	688	574	539
12 or More Months Prior Coverage	90	143	61	8	878	693	591	*

* Not computed because of low frequencies.

Appendix Table M. Overall retention of coverage in HIP of enrollees who convert, by sex and age at conversion.

Age and Sex	Lx				1,000 Px			
	Yr. of Conversion	1 Yr. After	2 Yrs. After	3 Yrs. After	Yr. of Conversion	1 Yr. After	2 Yrs. After	3 Yrs. After
Both Sexes								
Under 20	130	216	96	30	808	632	520	434
20–44	170	311	134	45	889	692	640	569
45–64	62	105	59	21	742	629	533	508
Males								
Under 20	68	106	44	17	764	591	484	398
20–44	80	150	67	22	900	714	649	560
45–64	27	47	25	8	708	603	507	*
Females								
Under 20	62	110	51	13	855	677	558	*
20–44	90	162	67	23	878	672	632	578
45–64	35	58	34	13	769	649	553	*

* Not computed because of low frequencies.

SOCIO-ECONOMIC STATUS AND ILLNESS

KATHERINE B. LAUGHTON, M.SC.;[1] CAROL W. BUCK, M.D., PH.D., D.P.H.;[2] AND G. E. HOBBS. M.D., M.P.H.[2]

INTRODUCTION

AN inverse relationship between economic status and the occurrence of ill-health is commonly accepted as a proven fact. The gross differences in prosperity between advanced and under-developed countries are certainly associated with large differences in mortality. Less marked but still appreciable mortality variations have been observed between social classes within countries. That these observations reflect social influences upon the occurrence of ill-health and not merely upon the outcome of disease has been suggested by the results of morbidity investigations made in North America earlier in this century (1, 10). There have, however, been few reappraisals of this question in recent years among economically advanced populations. Among such groups it is quite possible that the smaller variations in socio-economic position which now exist have no appreciable effect upon the occurrence of illness.

Graham (3) has described a study of the relation between socio-economic status, illness, and the use of medical services, based upon personal interviews with members of a sample of the general population in Butler County, Pennsylvania, in 1954. He found that there were no significant differences among five occupationally determined classes in their frequency of acute and chronic illness or in their use of medical services.

The present paper is a report of an inquiry which, like that of Graham, was prompted by the wish to re-examine the relationships between social class and ill-health which were observed in earlier morbidity studies.

[1] Formerly from the University of Western Ontario, now with the Faculty of Medicine, University of Vermont, Burlington, Vermont.
[2] The Faculty of Medicine, University of Western Ontario, London, Ontario, Canada.

Method of Study

The investigation was based upon the records of physicians' services to families enrolled in a comprehensive plan for prepaid medical care in Essex County, Ontario[3] and thus uses a different method from Graham's for the ascertainment of illness. The group with which this report deals came from a 5 per cent systematic sample of the family medical records of W.M.S. and consisted of the 115 families in this sample who enrolled in the plan in 1946.

Since the family medical ledger was put into use by W.M.S. in 1948, records of medically attended illness were available from January 1948 to June 1953, when the sampling was carried out. Because of cancellations, contract transfers and new entrants as births, not all persons had records for the entire period. Thus a compromise was sought between obtaining a maximum number for study and using as long a study period as possible. This was best achieved by counting illness episodes over a two-year period for all individuals with records for at least this length of time.

The fact that all families had enrolled in 1946, two years before their records were used, was regarded as a considerable advantage, because it meant that socio-economic comparisons could be made between families who had already had access to comparable medical care for a full two-year period.

The classification of socio-economic status was made in terms of the rent level of the family's area of residence, a method which has been used by a number of other workers (4, 5, 6). The following procedure was used: the Windsor City census tracts in which the families lived during (or for the main part of) the period were arranged in order of their median monthly rental (1951) and then combined into three groups such that each contained roughly one-third of the families. Ten families were excluded because they lived in that part of Essex County outside the City of Windsor. The small size of the sample pre-

[3] Windsor Medical Services, Incorporated (W.M.S.).

cluded the use of more than three groups. The distribution of families was as follows:

Rental Group	*Number of Families*	*Range of Census Tract Median Rentals*
Upper	36	$43 – 57
Middle	33	$39 – 43
Lower	36	Under $39

The rental values appear abnormally low but this is explained by the fact that rent controls adopted during the War were not lifted until after the 1951 Census. We have however sufficient information to be certain that these rentals still provide an adequate index of the relative economic levels of the census tracts.

Among the 105 families there were 308 individuals under age 60 with records for at least two years. Persons aged 60 years and over were excluded from the study, for as a result of age restrictions on W.M.S. enrollment, they are few in number and probably very unrepresentative of the general population.

The age distributions of the three rental groups were roughly comparable apart from a relative excess at ages 1 to 19 and a relative deficit at ages 40 to 59 in the lower rental group. Because of the small total number of individuals in the study it was preferable to balance the three groups according to age rather than to make age-specific comparisons throughout. Random elimination[4] of 17 persons at ages 1 to 19 and 13 persons at ages 20 to 39 from the lower rental group achieved reasonable equality in the age distribution of the three groups, as shown in Table 1. Except where otherwise specified, this group of 278 individuals forms the basis for all analyses to be described.

Two further points concerning the study population should be mentioned: (1) For persons with records for more than two years, the first two years were taken for study. (2) Any in-

[4] This was done by numbering all persons in the age-rental-group and then choosing the required number to be eliminated from a table of random numbers.

Age Group	Rental Group						All Groups	
	Upper		Middle		Lower			
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
1–19	39	38.2	34	38.2	34	39.1	107	38.5
20–39	29	28.4	31	34.8	27	31.0	87	31.3
40–59	34	33.3	24	27.0	26	29.9	84	30.2
All Ages	102	99.9	89	100.0	87	100.0	278	100.0

Table 1. Selected group of individuals with records for two years by age and rental group.

dividual who changed age-groups during the period was placed in the group corresponding to his starting age.

Results

Comparisons of total illness were made in terms of the mean number of illnesses per person. For comparisons of specific categories of illness, however, it was statistically simpler to use the proportion of persons with one or more episodes of the specified illness, since multiple occurrences were not common. In each case the means were also calculated but in no instance did they contradict the results given by the proportions.

1. *Total Illness* (*including Trauma*). Table 2 shows the mean number of all medically attended illnesses per person over a two-year period, by rental groups. The lowest value is in the middle group, however the differences are small and were not significant when tested by analysis of variance.

Table 2. Total illness—mean number illnesses per person in a two-year period. (N = 278).

Rental Group	Mean	Standard Deviation
Upper	2.76	±2.78
Middle	2.49	±2.26
Lower	3.38	±3.31

It might be thought that attainment of statistical significance was prevented by a large within-group variance resulting from the amalgamation of age-groups. This however was not the cause of the large variance because the means for the three age-groups differed relatively little.

Thus, the finding of standard deviations approximately equal to the means indicates the non-normal nature of these illness distributions, a phenomenon with considerable bearing upon the problem of individual variations in sickness experience. This problem, which is still under investigation will not be discussed further in the present report.

Table 3. Proportion of persons with traumatic illness in a two-year period. (N = 278).

Rental Group	Proportion
Upper	0.20
Middle	0.13
Lower	0.30
$X^2 = 7.11$, d.f. = 2,	$p < 0.05 > 0.02$

2. *Traumatic Illness.* Table 3 gives for each rental group the proportion of persons having one or more medically attended injuries in a two-year period. The highest proportion is in the lower group and the lowest in the middle group. These differences were statistically significant.

It may be noted here, that removal of traumatic illnesses from the total illness comparison had no effect upon the trends described above and shown in Table 2.

3. *Psychiatric and Psychosomatic Illness in Adults.* In a previous paper (7), a detailed description is given of an empirical code whereby illnesses, classified first by the International Statistical Classification, are placed along a psychiatric continuum ranging from the most definite psychological entities such as anxiety neurosis, through illnesses of probable and possible psychosomatic nature (e.g.: migraine, peptic ulcer, allergy, essential hypertension) to illnesses which most physicians would record as definitely organic (e.g.: neoplasms, infections, etc.).

Table 4. Proportion of persons, ages 20–59, with psychoneurotic or psychosomatic illness in a two-year period. (N = 171).

Rental Group	Proportion	N
Upper	0.41	63
Middle	0.40	55
Lower	0.40	53

The proportion of persons attended for one or more definite psychiatric, probable or possible psychosomatic illness is shown for individuals aged 20 to 59 in Table 4. Children were excluded

from the analysis because there are difficulties in the application of this psychiatric code to the illnesses of childhood. The proportions in the three rental groups are almost identical.

Table 5. Proportion of persons, ages 20–59, with one or more selected chronic illnesses in a two-year period. (N = 171).

Rental Group	Proportion
Upper	0.22
Middle	0.29
Lower	0.36
$X^2 = 2.62$, d.f. = 2,	$p < 0.30 > 0.20$

4. *Chronic Illness in Adults.* The following chronic illnesses were grouped together for study: malignant tumors, thyroid and other endocrine disorders, obesity, organic nervous disease, cerebral vascular disease, degenerative cardiovascular disease, venous disorders, peptic ulcer, hernia, arthritis, and bone deformity. Table 5 shows for each rental group the proportion of persons aged 20 to 59 attended for one or more chronic illnesses over the two-year period.

Here for the first time one observes a gradient from upper to lower rental groups. However, this trend did not reach statistical significance.

5. *Otitis Media in Children.* Otitis media was selected for special study because this condition usually is a complication of upper respiratory infection or communicable disease and therefore its occurrence might be particularly sensitive to socioeconomic influences upon a child's general health and upon the care he receives during minor illness.

Table 6. Proportion of children, ages 1–19, with one or more episodes of otitis media. (N = 141).

Rental Group	Proportion	N
Upper	0.11	45
Middle	0.18	40
Lower	0.32	56
$X^2 = 7.02$,	d.f. = 2,	$p < 0.05$

For the analysis of one specific illness a larger number of children was required; this was accomplished by including all children aged 1 to 19 regardless of the number of years for which their records were available.

Table 6 gives the proportion of children attended for one or more episodes of otitis media in a two-year period.

The increase in this proportion from upper to lower rental groups is statistically significant at the 5 per cent level.

However, since otitis media is generally commoner among very young children than among the school-age and adolescent groups it is necessary to compare the three rental groups as to age distribution within the broad 1 to 19 year age group.

Table 7. Percentage age distribution of all children aged 1–19 by rental groups. (N = 141).

Age Group	Rental Groups		
	Upper	Middle	Lower
1–4	23.2	32.4	44.4
5–9	18.6	18.9	18.5
10–14	25.6	18.9	20.4
15–19	32.6	29.7	16.7
All Ages	100.0	99.9	100.0

Table 7 gives the finer age breakdown and reveals the fact that there is an increase in the proportion of children aged 1 to 4, as one goes from upper to lower rental groups. To determine how much of the observed difference in otitis media might be due to this factor, an age-standardized proportion of children with otitis media was calculated for each rental group (the three rental groups combined were taken as the "standard" population).

The results of this calculation are shown in Table 8. Once correction for age has been made, very little trend remains and the difference between upper and lower groups is not impressive.

6. *Preventive Services and Illness in Infants Under Two Years of Age.* This analysis was based upon data for 45 children who were under two years of age at any time during the study period.

Their distribution by rental groups was as follows:

Rental Group	*Number of Infants*	*Mean Duration of Observation Period*	*Mean Age at Midpoint of Period*
Upper	11	1.47 years	0.85 years
Middle	15	1.47 years	0.85 years
Lower	19	1.45 years	0.82 years

Preventive services included immunization, dietary regulation, and routine medical examination of the well baby.

The results are shown in Table 9. A clear trend for illness is apparent, and some difference in the use of preventive services is seen, although it does not follow a linear trend.

Table 8. Age standardized proportions of children with otitis media. (N = 141).

Rental Group	Age-Standardized Proportion
Upper	0.18
Middle	0.17
Lower	0.26

Analysis of variance was applied to these data. No significant differences were found for preventive services, but for medically attended illness the differences were statistically significant as shown in Table 10.

Further study of the illness data showed that this trend was present for both of the chief causes of illness in infants; gastro-intestinal and respiratory infections. It was thought that the differences found among infants might be due to an increase in family size from upper to lower rental groups with an asso-

Table 9. Preventive services and illnesses, infants under two years of age. (N = 45).

	Rental Group		
	Upper	Middle	Lower
Average Number Preventive Services per Infant	10.7	7.7	8.5
Average Number Illnesses per Infant	2.8	3.4	5.8

Table 10. Analysis of variance—illnesses in infants under two years of age.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-Ratio	P
Between Classes	78.4	2	39.2	4.1	<0.05
Due to Linear Regression	72.0	1	72.0	7.6	<0.01
Deviation from Linear Regression	6.4	1	6.4		
Within Classes	400.4	42	9.5		
Total	478.8	44			

Rental Group	Starting Age			
	1–2	3–4	5–9	10–19
Upper	3.43	3.00	4.89	2.39
Middle	3.80	1.50	1.57	2.27
Lower	6.36	2.25	3.57	2.11

Table 11. Mean number illnesses per person in a two-year period, children 1–19 years. (N = 107).

ciated increase in exposure of the infant to infection. This, however, was not the case, for the mean sibship sizes (including the infant) were 2.4, 2.2, and 2.1 for infants in the upper, middle and lower groups respectively.

A reasonable question which now arises is whether or not the same phenomenon existed throughout childhood, that is in the age-group 1 to 19, whose total illness by rental groups has not been shown separately. Table 11 presents the data for four age-groups within the childhood period. The means at ages 1 to 2 follow the trend already observed among the whole infant group, but beyond this age no socio-economic gradient is apparent. In fact, the tendency for the middle group to have the lowest value, which was observed for all age-groups combined, is also apparent in childhood.

Discussion

Before considering any of the specific findings of this study, it should be emphasized that the socio-economic comparisons which are made relate to a population which does not include people at the very bottom of the economic scale. This is inherent in the method of study, based as it is upon records for persons insured through employed groups.

In many respects, the results of this study lead to conclusions similar to those of Graham (3), in spite of the fact that different techniques were used for ascertainment of illness and for socio-economic classification. In both studies, no appreciable trends were found for illness in toto. An essentially similar result comes from the recent Canadian Sickness Survey (2) where illness, as measured by average number of days of dis-

ability per year, did not rise with decreasing income until the lowest group (annual income of less than $1,500) was reached. The present data on chronic illness showed a consistent trend of increase with decreasing social status more marked than that observed by Graham although the differences, like his, were not statistically significant.

The interpretation of the peculiar finding in the present study that accidents were more frequent in the upper and lower groups must be left open for further investigation specific for type of accident and place of occurrence, etc. This result differs from that of Steed (9) who found a fairly consistent rise in the frequency of accidents as housing standard fell, among residents of two census tracts in the city of Augusta, Georgia.

The absence of any socio-economic trend in the occurrence of psychiatric and psychosomatic illness is of some interest. Since no comparison of specific diagnoses has been made, undetected qualitative differences may exist, but in quantitative terms no social gradient was apparent.

Of considerable interest is the finding of significant differences between rental groups in the amount of total illness among infants under two years of age. The latter observation is in agreement with the results of an intensive investigation of 1,000 families made by Spence and colleagues (8) in Newcastle, England.

Such agreement is worthy of comment. The Newcastle study covered a much wider range of socio-economic classes than the present one and since it was based upon illnesses from May 1947 to April 1948, before the appointed day for the National Health Service Act, it did not pertain to a completely insured population. Thus it is noteworthy that the present population, whose socio-economic range is relatively narrow and whose members had access to equal medical care for two years before as well as during the study period, showed the same phenomenon as that observed in the British investigation.

Summary

Data from records of medically attended illness among 105

urban families enrolled in a comprehensive medical care plan have been used to compare the morbidity of three socio-economic groups distinguished by the median rental of the census tracts in which they lived. All persons were followed for two full years.

The three groups did not differ in total illness or in psychiatric and psychosomatic illness.

Accidents showed significant differences and were least common in the middle group and most common in the lowest group.

Chronic illness showed a trend of increase with decreasing status, although not statistically significant.

A significant gradient was observed for total illness among infants under two years of age.

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BIRTH AND DEATH REGISTRATION IN MASSACHUSETTS

I. THE COLONIAL BACKGROUND, 1639–1800*

ROBERT GUTMAN**

THE registration of births and deaths became a fairly regular practice in some parts of Europe during the sixteenth century. This fact is well-known. What is less often recognized is that a system for registering vital events was established in the New World soon afterwards. In 1639, thirty-two years from the date of the first white settlement in Virginia and nineteen years after the arrival of the Pilgrims, a law was enacted in the Massachusetts Bay Colony requiring that records be kept of the date of the birth and of the death of every inhabitant of the area. The discussion which follows charts the history of the first registration laws as well as those which were enacted in subsequent periods up to 1842, when a modern vital statistics system was established in the state of Massachusetts.[1]

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** From Rutgers University.

[1] The reader familiar with the literature in the field of the history of statistics will recall that a history of vital registration laws in Massachusetts between 1639 and 1692 was written by Kuczynski over a half century ago. It has been thought worthwhile to repeat in the present paper a description of the events which he noted: in part, because historical research since 1900 makes possible a fuller interpretation of them; and also for the reason that these events take on a new meaning when they are seen in the context of the history of vital registration during the whole period. *See* Kuczynski, R. R.: The Registration Laws in the Colonies of Massachusetts Bay and New Plymouth. *Journal of the American Statistical Association*, 7 (1900–01), pp. 65–73.

More recently an historian of medicine and public health has discussed the development of the movement for vital statistics in Massachusetts, in both its private and public aspects. He does not, however, give much attention to the registration laws or the registration system as such. *See* Blake, John B.: The Early History of Vital Statistics in Massachusetts. *Bulletin of the History of Medicine*, 29 (1955), pp. 46–54.

For a brief discussion of the registration laws of 1842 and the following years of the nineteenth century, as well as for a discussion of the consequences of these laws for the accuracy of birth statistics, *see* Gutman, Robert: The Birth Statistics of Massachusetts During the Nineteenth Century. *Population Studies*, July, 1956, x, pp. 69–94.

The Colony of Massachusetts Bay

As was the case with almost all the settlements established by the English in North America during the seventeenth century, the Massachusetts Bay Colony began, in part, as a trading corporation venture. The corporation was organized in Britain for the purpose of exploiting the great natural resources, especially the furs and fish, that were to be found on the American continent or in surrounding waters. However, the development of Massachusetts Bay differs from that of many other colonies because, from the inauguration of the venture, the trading company in London which supported the settlement voted to transfer the responsibility for governing and administering the Colony to those shareholders who migrated to the New World. One of the consequences of this decision was that only about six months after the first settlers arrived in the Colony in 1630, a General Court, or legislature, had been established. Although at the beginning the suffrage qualifications for electing this body were restrictive, within four years all freemen willing to swear loyalty to a Christian code became eligible to elect deputies to represent them at meetings of the General Court in Boston.[2] It was this body which in 1639 was to enact the first law relating to registration of births, marriages, and deaths ever recorded in Massachusetts.

The settlement over which the General Court of the Massachusetts Bay Colony acquired hegemony was an extensive land area extending from the Charles River to beyond the Merrimac and from the Atlantic shore far westward into the Continent. For about a decade, ever since Englishmen had begun to migrate to the New World, some of the more adventuresome among them had helped to form towns within the area now comprised by Massachusetts and Maine. When the Massachusetts Bay Colony was established these scattered towns attracted a substantial portion of the immigrants who came to

[2] Osgood, Herbert L.: The American Colonies in the Seventeenth Century. New York, Columbia University Press, 1904, Vol. 1, Pt. 2, Chap. 1, p. 155 and *passim*.

the Colony after 1630. As a result, the population of Massachusetts Bay was soon dispersed so that within ten years after its founding, twenty-two towns had been organized.[3]

The relation between the General Court of the Colony and these towns is of special interest to the historian of vital registration because the first registration law was an act passed by the Court but placing the burden for collecting vital statistics on the towns. The precedent for such a law was established early. Shortly after the Massachusetts Bay settlement was founded but before the General Court had been organized, the Governor and his Assistants undertook such diverse responsibilities as selecting the constables of the towns and approving the name the individual town had suggested for itself. Further orders of this sort were made by the first General Court ever convened, which met in the autumn of 1630; it was at this meeting that the General Court established its right to require that any person or group desiring to found a new town first obtain its permission.[4] In 1635 this system of town-colony relations was institutionalized by a general law which provided that towns could pass only orders that were "not repugnant to the laws and orders here established by the General Court."[5]

The original registration law built upon this tradition. It was enacted by the General Court convened in Boston on September 6, 1639 and it read as follows: "That there be records kept of all wills, administration, and inventories, as also of the days of every marriage, birth and death of every person within this jurisdiction."[6] The records were to be kept by the recorder of each town, an appointed official whose job also included making records of the place of each man's house and lands, the judgments in every Court and a record of all purchases by the Indians and from the Indians.[7] The law did not specify who was to inform the recorder of these events, but whoever the

[3] Sly, John F.: Town Government in Massachusetts, 1620–1930. Cambridge, Harvard University Press, 1930, Chap. 1, *passim*.
[4] *Ibid.*: Chap. 1, *passim*.
[5] Massachusetts: Records of the Governor and Company of Massachusetts Bay in New England. Boston, William White, 1853, Vol. 1, p. 172.
[6] *Ibid.*: Vol. 1, p. 276.
[7] *Ibid.*: Vol. 1, p. 276.

person was, he was ordered to pay the recorder "for every death, one pence, for every birth, one pence."[8] The law also required that these records were to be certified once each year by the General Court, until which time they would have no legal status, and any town which failed to send up its records for certification by the Court was subject to a penalty of forty shillings.[9]

It seems fairly clear that the legislature was not motivated to register deaths by any interest in studying the public health nor to record births in order to predict the course of population growth. Rather, vital events were registered because they were among the fundamental facts which had to be known by any community intent upon preserving a record of itself—the same sort of impulse which makes some people today into amateur genealogists. Furthermore, and this was probably the more important motive, lists of births and deaths would be useful in cases of probate. Thus the text preceding the statement of the 1639 law in the Massachusetts Bay records reads: ". . . whereas many judgements having been given in our Courts, whereof no records are kept of the evidence and the reasons whereupon the verdict and judgement did pass, the records whereof being duly entered and kept would be good use for presentation to posterity, and a relief to such as shall have just cause to have their causes heard and reviewed, it is therefore by this Court ordered and decreed that hence forward every judgement with all the evidence, be recorded in a book to be kept to posterity."[10]

There are several facts which indicate that the operation of this law was not so successful as had been hoped. Lemuel Shattuck, one of the founders of the science of vital statistics in the United States, who examined those vital records of the Colony which had survived to the 1840's,[11] reported that they

[8] *Ibid.:* Vol. 1, p. 276.
[9] *Ibid.:* Vol. 1, p. 276.
[10] *Ibid.:* Vol. 1, p. 276.
[11] "Letter from Lemuel Shattuck, Esq." in SECOND ANNUAL REPORT TO THE LEGISLATURE . . . RELATING TO THE REGISTRY AND RETURN OF BIRTHS, MARRIAGES AND DEATHS IN MASSACHUSETTS. Boston, Dutton and Wentworth, 1843, p. 65.

were "very imperfect and unsystematic." Shattuck also tabulated and analyzed the vital records of Boston for this period, but the mortality functions derived therefrom suggest that the records of death in this town, too, were incomplete.[12] There is some evidence that the colonists of the time were themselves dissatisfied with the records. In a preface to the revision of the 1639 law, made in 1642, a reference is made to the neglect of the existing law,[13] and the final provision of the 1642 law instructs the recorders to "do their utmoust to endeavor to find out who hath been born and who hath died since the first founding of their towns and to record the same."[14]

The law of 1642 was enacted by the General Court on June 14th of that year.[15] It shifted the responsibility for collecting records of births and deaths to the clerk of the writs in each town. The clerk was an officer chosen by the town and approved by the County Courts whose primary task was to grant summons and attachments in civil cases and to keep account of the defendants in such actions.[16] The task of certifying the records was decentralized so that henceforth the clerk in the town had to send a transcript of his record to the *magistrate's* court in his town or country instead of to the General Court. The fee which the informant had to pay the clerk was raised to three pence, two of which he kept while he was required to send the other to the court along with the transcript to be certified. In order to further encourage the observance of the law, it was provided that the clerk was subject to a penalty of twenty shillings if he failed to comply.[17]

The laws of 1639 and 1642 established the form of a registration system and provided both incentives and penalties for the recording officers, but the laws did not specify how the

[12] Shattuck, Lemuel: An Essay on the Vital Statistics of Boston from 1810 to 1841. Boston, printed for the Registry Department, 1893, p. xi.
[13] Massachusetts: Records . . . of Massachusetts Bay in New England, Vol. 2, p. 15.
[14] *Ibid.*: Vol. 2, p. 15.
[15] *Ibid.*: Vol. 2, p. 15.
[16] Osgood: *op. cit.*, Vol. 1, p. 192.
[17] Massachusetts: Records of . . . Massachusetts Bay in New England, Vol. 2, p. 15.

clerk was to acquire the information demanded by them. Who was to notify him of births and deaths? Was the clerk supposed to conduct a census of births and deaths on his own initiative? Should he consult midwives to find out about the births which they had attended and the keepers of burial grounds for information about who had been interred? Although the law did not require that he do so, the clerk of the writs in Boston, William Aspinwall, apparently conducted an annual canvass of births and, in addition, interviewed midwives and burial superintendents. He found the task of "going from house to house" extremely burdensome.[18] In order to relieve him, the selectmen of Boston published the following order in December of 1642: "Parents shall give in a note of the names of their children and the time of their birth, unto the clerk of the writs . . . within one week after the birth under the penalty of six pence, for every defect, and he that has the care of the burying place shall give notice unto the said clerk of the names of such as are buried and the constable shall signify this order unto every family in the town."[19] In 1643 Aspinwall addressed a petition to the General Court suggesting that this order be enacted for the Colony as a whole, with the additional provision that midwives be required to report births.[20] The Court ignored the provisions relating to midwives and keepers of burial places but in 1644 it did pass a new law which stated that "all parents, masters of servants, executors and administrators, respectively, shall stand charged to bring unto the clerk of the writs the names of such belonging to them, or any of them, as shall either be born or die . . . and for each neglect the person to whom it doth belong shall bring in a note or certificate as aforesaid together with three pence a name, to the said clerk of the writs; to be recorded above one month after such birth or death, he shall then pay six pence to said clerk; if he neglects

[18] Massachusetts Records, 1643–1774, Vol. 9, No. 30. Manuscript volume in State House, Boston, Mass.

[19] Second Report of the Commissioners of the City of Boston, 1877, p. 71, quoted in Kuczynski: *op. cit.*, pp. 66–67.

[20] Massachusetts Records, 1643–1774, Vol. 9, No. 30.

two months, twelve pence; if three months, five shillings, which forfeit shall be returned to the treasury [of the town] . . ."[21] The legislature also recommended that "we think it meet that the grand juries were minded to present such defaulters as they take notice of against the intent of this order."[22]

No further revisions were made in the Massachusetts Bay registration law for thirteen years, until 1657. The law enacted in the latter year was passed by the General Court on May 6.[23] It made no changes in the basic details of the system and was concerned almost exclusively with penalty matters. First of all, it provided that all births and deaths had to be returned to the clerk of the writs within one month after their occurrence, after which date the clerk was given the right to demand the information along with twelve pence for "his care and pains." In other words, the sliding scale of fees imposed by the 1644 law was abolished, and the authority of the clerk of the writs was enlarged. Secondly, in case any informant refused to agree to the demands of the clerk, the clerk was authorized to "return the name of such person or persons to the next magistrate or commissioners of the town where such person dwells, who shall send for the party so refusing, and in case he shall persist therein, shall give order to the constable to levy the same." Penalties on the clerk were also increased: for neglect of making annual returns to the County Court, he was fined five pounds; and for failing to return the name of any person returnable by law who died more than thirty days before he made his return to the County Court, five shillings. Finally, it was provided in order "that no future neglect may be herein, the recorder of each County Court is hereby enjoined from time to time to certify to the County Court respectively, the names of such clerks as shall neglect to make their yearly return according to this law, who, upon notice given, shall send for such clerk and deal in the case according as the law requires."[24]

[21] Massachusetts: Records of . . . Massachusetts Bay . . ., Vol. 2, p. 59.
[22] *Ibid.*: Vol. 2, p. 59.
[23] *Ibid.*: Vol. 3, pp. 426–427.
[24] *Ibid.*: Vol. 3, pp. 426–427.

Why was there a thirteen year lapse between the law of 1657 and the previous statute? Does it indicate that the Colony had lost interest in registration during the period? Is the lapse to be explained by the fact that registration was virtually complete in the 1640's but not in the 1650's? What happened, then, to bring about a decline in the quality of registration during the 1650's? Naturally, any answer to these questions must be largely speculative, but the writer is of the opinion that the long lapse and then the revived interest are to be explained as follows: Registration was virtually complete during most of the period, but the rapid expansion of the population and the area of the colony in the 1650's created new problems which could only be met by a stiffer law. Between 1642 and 1657 the number of inhabitants rose by more than fifty per cent,[25] and the number of towns was doubled.[26] If one were to suggest that the law was not amended because during the interim the colony had lost interest in keeping records, it would be difficult to account for the resolve which the General Court passed in 1647, ordering that "forthwith there be, by direction of the auditor general, a strong press made of very fine planks with rabbit joints one into another . . . to the end that all records, wills, births, letters, and other instruments which are of special and public concernment, may be safely preserved and improved to the good of the present and succeeding ages."[27]

Whether the 1657 law accomplished its purpose or not is unknown. There is no record of any attempt to revise it during the remaining thirty-five year history of the Massachusetts Bay Colony. It was incorporated in the statutes of 1660, and reenacted without amendment in the laws of 1672.[28]

[25] United States Bureau of the Census: A Century of Population Growth. Washington, Government Printing Office, 1909, p. 9.

[26] Sly: *op. cit.*, Chap. 2, *passim*. This statement is based on an estimate derived from the statistics presented by Sly.

[27] Massachusetts: Records of . . . Massachusetts Bay in New England, Vol. 2, p. 28.

[28] Kuczynski: *op. cit.*, p. 69.

The New Plymouth Colony

The New Plymouth Colony was founded in 1620 and thereby has achieved fame as the first permanent settlement in New England. From the beginning it was small in area and in population: after the devastating cold of the first winter the population was only fifty-one. Five years later it contained about two hundred people and as late as 1630 there were only three hundred inhabitants.[29] It included seven towns by 1640 and these were less dispersed than the 40 odd towns which made up the Massachusetts Bay Colony at this date.[30] The general outline of its political organization was much the same as that of the latter settlement, except that during the first ten years of its history the shareholders, who resided in Plymouth, England, exercised considerable control over the affairs of the Colony. In 1630 the Colony was sold to William Bradford and other inhabitants of New Plymouth.[31] Between 1630 and 1641 the government was vested in an oligarchy ruled by Bradford, and then in the latter year he "laid down his trusteeship and resigned the patent into the possession of the freemen of the Colony assembled in general court."[32]

Kuczynski has discussed the question when the first registration law was enacted in the Colony, the discussion of which, as he admits, is made difficult by the loss of the earliest records of the settlement.[33] The first proposal on record for a law was put forth in 1645 and the earliest evidence of a law having been enacted appears in 1646. Contrary to the implication of Kuczynski's discussion, I am of the opinion that there was no registration of births and deaths legally enforced before this date, although there is some evidence that the town clerks were expected to record marriages at least as early as 1641[34]

[29] Sly: *op. cit.*, p. 4.
[30] *Ibid.*: p. 24.
[31] Adams, James T.: The Founding of New England. Boston, Little, Brown, 1930, p. 116.
[32] Osgood: *op. cit.*, Vol. 1, pp. 299–300.
[33] Kuczynski: *op. cit.*, p. 69.
[34] New Plymouth Colony: Records of the Colony of New Plymouth in New England. Boston, William White, 1855, Vol. 1, p. 170.

and the records of the General Court of the Colony begin to list marriages as early as 1633.[35] I take this view because of what seems to have been the motive for vital registration during this period. As I stated earlier, it had no demographic or medical purpose but was, on the one hand, the consequence of the natural desire of a community to preserve a record of itself and, on the other, the result of the need to settle probate cases speedily and accurately. The Plymouth Colony, however, did not become self-governing until shortly before the passage of the 1646 law and so was unlikely to have developed the self-consciousness which goes along with the development of an independent community. For the reason that it was not self-governing during its earliest history, its judicial system developed late.[36] This fact, too, may have limited public awareness of the values of accurate records of births and deaths.

The proposal of 1645 was made before the General Court of May 3 of that year. It stated simply "that the clerk, or some one in every town, do keep a register of the day and year of every birth and burial and do have three pence for his pains."[37] The law which was enacted on July 7, 1646 confirmed this proposal, except that it made no mention of a fee.[38] Still later in the same year, at the next session of the General Court, on October 20, 1646, the law was amended and elaborated. It now provided that the clerk was to be paid three pence by the informant for his labors. Every father, mother, or person next in relation was to certify to the clerk the name and day of birth of the child within one month after it was born and every master or mistress in the family where a death occurred was to do the same, except that no time limit was prescribed for the notice of death. Any person who failed to inform the clerk was to be fined three shillings, one half to go to the governor and

[35] *Ibid.*: Vol. 1, p. 13.
[36] Osgood: *op. cit.*, Vol. 1, Part 2, Chap. 6.
[37] New Plymouth Colony: Records of . . . New Plymouth in New England, Vol. 2, p. 96.
[38] New Plymouth Colony: The Compact with the Charter and Laws of the Colony of New Plymouth. Boston, Dutton and Wentworth, 1836, p. 85.

the other half to the clerk "upon his complaint." Also, the clerk of each town was ordered to send a copy of his records for the previous year to the March Session of the General Court. The law was in many respects similar to that adopted in 1644 by the Massachusetts Bay colonists and may well have been copied from theirs.[39]

Twelve years later the law was re-enacted, with only a minor amendment which provided that henceforth the fine levied on recalcitrant informants was to be shared by the Colony and the clerk instead of dividing it between the Governor and the clerk.[40] In 1671 the law was approved once more, with a further minor alteration. This time the change related to the time allowed between the date of death and the date when it must be recorded, which was set at one month.[41] No other changes were made in the law before 1692, at which date the Colony was incorporated into the new province of Massachusetts Bay.

It is impossible to say with any degree of certainty how successful the laws of the New Plymouth Colony were, or, if they were not successful, why no attempt was made to revise them more fully after 1646. The vital records collected there may have been more complete than in Massachusetts Bay because the New Plymouth Colony was small and because the colony's control over the towns was more strict than elsewhere in New England.[42] On the other hand, the very concentration of the Colony's population may have led the inhabitants to believe that serious attention to registration was unnecessary. Given the lack of evidence, however, it is impossible to resolve these contradictory interpretations.

The Province of Massachusetts Bay

By 1680 the population of the territory which included the two colonies had reached forty thousand[43] and was distributed through approximately eighty towns.[44] This enormous growth

[39] *Ibid.*: p. 86.
[40] *Ibid.*: p. 271.
[41] *Ibid.*: p. 271.
[42] Osgood: *op. cit.*, Vol. 1, p. 296.
[43] United States Bureau of the Census: *op. cit.*, p. 9.
[44] Sly: *op. cit.*, pp. 45–46.

during the first fifty years of its history was accompanied by major changes in the political, social and religious institutions of both colonies, but especially in that of Massachusetts Bay. For instance, the latter had begun to develop an industry and trade of its own, apart from the control of the mother country. This independence often conflicted with England's interests. Although Massachusetts Bay was allowed a good deal of self-government by its charter, it was nevertheless subject to numerous restrictions as a colony of the King. These restrictions were often ignored.[45] The Colony's tendency to deny the limitations placed on its independence by the royal charter led to the revocation of its charter in 1684.[46] Less than a hundred years later, such action on the part of the mother country would have been sufficient cause for a war of independence, but at the end of the seventeenth century the New England colonists were not ready to stand alone and fight a battle to preserve their rights of self-government. Between 1684 and 1691 they agreed to a number of demands for concessions made by the King until their charter was restored in the latter year.[47] Under the new charter the boundaries of Massachusetts Bay were expanded to include the former New Plymouth Colony, the present state of Maine and the islands south of Cape Cod. The whole territory was named the Province of Massachusetts Bay.[48]

When the government of the Province was organized in 1692, it became a problem to determine what effect the new charter had on the statutes, including the registration laws, passed under the former rule. One of the first acts of the General Court, therefore, was to confirm the laws of the old Massachusetts Bay and Plymouth Colonies until the following November. In November, the laws were "renewed without

[45] Cook, Sherwin L.: Governmental Crisis (1664–1686). COMMONWEALTH HISTORY OF MASSACHUSETTS, ed. by Albert B. Hart. New York, The States History Company, 1927–28, Vol. I, p. 563. *Also* Jernegan, Marcus W.: The Province Charter (1689–1715), in same series, Vol. II, Chap. 1, *passim*.

[46] Osgood: *op. cit.*, Vol. 3, Chap. 10.

[47] Sly: *op. cit.*, p. 77.

[48] Jernegan: *op. cit.*, p. 11.

limitation."[49] A few months later, however, partly because of the need to reconcile the laws of the two colonies, a registration law was passed which, in effect, repealed the existing statutes.

The new law continued the practice inaugurated in the New Plymouth Colony of placing the responsibility for registering births and deaths on the town clerks. The clerk was both empowered and required to do this, in the manner of the Massachusetts Bay law of 1657. There is some suggestion in the phrasing of this section of the law—"the clerk is empowered and required to take *an account of* all persons that shall be born or die" (italics mine)—that the clerk was expected to conduct a census for this purpose, a likely expectation in view of what we know of how the information about births and deaths was collected in Boston as early as 1642. For the first time the clerk was required to obtain the name and surname of the parents of the new born and the deceased and to note the time when the birth or death occurred. The informant had to pay a fee of three pence to the clerk for each event registered, as was stipulated in the earlier laws. One month after the event was allowed for registration. No mention is made of penalties for a town clerk who may have been derelict in his duty, but the penalty for neglect on the part of an informant was made more severe, as follows: "if any shall neglect or refuse to give notice to the town clerk of the birth or death of any person that they are so related to or concerned for, or to pay for registering as above said by the space of thirty days next after such birth or death, every person so refusing or neglecting, and being [upon the complaint of any town clerk] thereof convicted before a justice of the peace within the same county, shall forfeit and pay unto such clerk the sum of five shillings, to be levied by distress and sale of the offender's goods by warrant from such justice, if payment thereof be not made within four days next after conviction as aforesaid."[50]

[49] *Ibid.*: p. 15.

[50] Massachusetts: Acts and resolves, public and private of the Province of

(Continued on page 71)

The most surprising feature of the law is that it did not require clerks to send copies of their records to a central agency or to have the records certified by a court. There are at least three reasons which may be offered to explain this change which, from the viewpoint of modern vital statistics, represents a retrogressive step in the history of vital registration in Massachusetts. First of all, since there was no interest at this date in the statistical or public health implications of vital records, there was no legitimate reason to have them collected by a central agency because they would not have been tabulated or analyzed anyway. Secondly, under the new charter the appointment of the town clerks was, for the first time in the history of state-local government relations in Massachusetts, made subject to the approval of the General Court. Thus it was possible to consider the town clerk an official who possessed delegated responsibility from the Court and whose records thereby automatically acquired the status of legal evidence. Since the major use of vital records during this period was as evidence in disputes before the local courts there again was no need to have them collected by a central agency. This particular explanation of the peculiar feature of the law is supported by a new provision which for the first time allowed the *clerks,* rather than the central government, to issue the certified copies of their records for use in courts of law. This provision reads: "And every town clerk shall give forth from the registry a fair certificate under his hand of persons born or dying in the town, to any who shall desire the same; and he shall receive six pence and no more for every certificate so given."[51] A third factor which possibly led to the abandonment of the collection of records is that between 1630 and 1692 the towns had become so numerous and so widely scattered that it became impracticable, given the crude means of transportation and communication available at the end of the seventeenth century, for the central government to maintain the kind of supervision of town

THE MASSACHUSETTS BAY. Boston, Wright and Potter, 1869, Vol. I, pp. 104–105.
[51] *Ibid.:* Vol. I, p. 105.

affairs implied in requiring the General Court to certify the legality of local records.[53]

The law of 1692 remained the registration law of the Province of Massachusetts Bay as long as the Provincial government survived. In 1742, however, a minor revision was made. The fee for recording births and deaths was raised to four pence and the fee for a certificate of birth or death was set at three pence.[53] However, in 1750, the fees were lowered again to three and two pence respectively.[54] To the best of our knowledge the General Court did not even consider making further changes in the law during this period.

Massachusetts in the Federal Union

The Province of Massachusetts Bay disappeared as a political entity with the American Revolution. In 1774, the last General Court to convene at the direction of the Royal Governor met.[55] For the next five years, until a constitutional convention was organized in the autumn of 1779, a temporary government reigned.[56] Out of the deliberations of the convention a commonwealth was formed, which was inaugurated in October of 1780, with John Hancock as the first governor.[57] At this date, Massachusetts was made up of 239 towns with a population of about three hundred thousand persons.[58] The form of government of the Commonwealth was very similar to that of the Province. Its legislature retained the name General Court and was divided into two houses, the Senate and the House of Representatives. The power to make laws was vested in the Court and the Governor was given a power of veto,

[52] Whitten, R. H.: Public Administration in Massachusetts. Columbia University Studies in History, Economics and Public Law, Vol. VIII, No. 4, New York, Columbia University Press, 1898, Chap. 1.

[53] Massachusetts: Acts and Resolves . . . of the Province of Massachusetts Bay, Vol. III, p. 17.

[54] *Ibid.*: Vol. III, p. 530.

[55] Braley, Abner L.: Provisional Government of Massachusetts. Commonwealth History of Massachusetts, ed. by Albert B. Hart. New York, The States History Company, 1929, Vol. III, p. 65.

[56] *Ibid.*: Chap. 3, *passim*.

[57] Edmonds, John H.: Massachusetts and Independency (1629–1780), Commonwealth History of Massachusetts, ed. by Albert B. Hart. New York, The States History Company, 1929, Vol. III, p. 116.

[58] United States Bureau of the Census: *op cit.*, p. 9.

which, however, could be overridden by a two-thirds vote of the Senate.[59] In 1788, Massachusetts ratified the Constitution of the United States and joined the federal union as the State of Massachusetts.[60] Except for occasional changes of boundaries and minor constitutional reforms it has retained the same form of government to the present day.

The war-time government of Massachusetts took no interest in registration—it was too busy supervising a war and founding a society. The State government first became concerned about registration in 1796 when it passed a law to replace the measure enacted by the Province of Massachusetts Bay in 1692.[61] The new law raised the fee which was to be paid to the town clerk for the recording of births and deaths from two pence to eight cents, and for providing a certificate of the event, from three pence to ten cents.

The law spelled out in greater detail than heretofore which persons were responsible for reporting births and deaths. "It shall be the duty of parents to give notice to the clerk of the town or district in which they dwell, of all the births and deaths of their children; and it shall be the duty of every householder to give notice of every birth and death which may happen in his house; and of the eldest person next of kin to give such notice of the death of his kindred; and it shall be the duty of the master or keeper of any almshouse, workhouse, or prison, and of the master or commander of any ship or vessel to give notice of every birth or death which may happen in the house or vessel under his care or charge, to the clerk of the town or district in which such event shall happen."[62] Finally, another provision of the law changed the penalty for failing to report

[59] Bacon, Gaspar G.: The State Constitution. COMMONWEALTH HISTORY OF MASSACHUSETTS, ed. by Albert B. Hart. New York, The States History Company, 1929, Vol. III, Chap. 7, *passim*.

[60] Holcombe, Arthur N.: Massachusetts and the Federal Constitution of 1787. COMMONWEALTH HISTORY OF MASSACHUSETTS, ed. by Albert B. Hart. New York. The States History Company, 1929, Vol. III, Chap. 13, *passim*.

[61] Holcombe, Arthur N.: Massachusetts and the Federal Constitution of 1787. COMMONWEALTH HISTORY OF MASSACHUSETTS, ed. by Albert B. Hart. New York, The States History Company, 1929, Vol. III, Chap. 13, *passim*.

[62] Massachusetts: THE LAWS . . . PASSED FROM THE YEAR 1780 TO THE END OF THE YEAR 1800, Vol. II, p. 725.

a birth or death from five shillings to one dollar, the length of time for registration from one month to six months and ordered that the penalty for neglect was to be paid to the person or the town who would prosecute for the same.[63]

In its original version, the bill which led to this law would have continued to require parents and kin to return births and deaths and to pay the clerk for recording the event. In order to cope with the deficiencies in the registration system it would have provided further that the clerks be required to conduct an annual census of births and deaths. The latter provision was eliminated from the bill as enacted. In its place, a provision was added that required the town, rather than the parents and kin, to pay the registration fee. Thereby it was hoped that the completeness of registration would improve without adding to the burdens of the town clerks.[64]

The 1796 law was incorporated without revision in the General Statutes codified in 1835.[65] No further legislation relating to registration was considered by the General Court until the modern registration system was inaugurated in 1842. The law of 1842 did not repeal any of the provisions of the 1796 law. It only added to them, by requiring that the town records of births and deaths be collected by the central government. A total revision of the registration law was not effected until 1844. Consequently, the 1796 law remained the basis of the system for registering vital events for two years after Massachusetts had become the first American state to organize a modern vital statistics system.

[63] *Ibid.:* Vol. II, p. 725.

[64] Massachusetts State Archives Act 1796, chap. 69. Ms. State House, Boston, Mass.

[65] Massachusetts: The Revised Statutes of the Commonwealth of Massachusetts. Boston, Dutton and Wentworth, 1836, p. 182.

CHILD SPACING AS MEASURED FROM THE AGES OF CHILDREN IN THE HOUSEHOLD*

JOSEPH SCHACHTER[1] AND WILSON H. GRABILL[2]

INTRODUCTION

SINCE the end of World War II, attempts have been made to assess the significance of the high postwar fertility rates in terms of the pattern of family growth and the ultimate size of completed families. These efforts have been handicapped, however, by the absence of adequate information on the interval between marriage and childbearing, and between successive births.

In recent years, a number of demographers have addressed themselves to the problem of obtaining statistics on this aspect of fertility experience, carrying out studies for selected areas and population groups. Two current studies—"The Growth of American Families," and "The Study of American Family Life," promise to add considerably to our knowledge in this area.

The present paper concerns a project now nearing completion, which was undertaken cooperatively by the National Office of Vital Statistics and the Bureau of the Census, to develop by-product statistics on child spacing from cross-sectional census data.[3] This approach is experimental. However, if found effective, it provides a means of obtaining nationwide information on the subject for white and nonwhite women of childbearing age by social and economic status, on a current and continuous basis.

The following paragraphs describe the derivation of child-spacing data from the 1950 Census of Population and Housing.

* A paper read at the meeting of the Population Association of America on May 4, 1957. The opinions expressed here are those of the authors and do not necessarily reflect the official views of the agencies with which the authors are connected.

[1] National Office of Vital Statistics.

[2] United States Bureau of the Census.

[3] The full report, to be published by the National Office of Vital Statistics, will contain a detailed explanation and extensive tables.

Essentially the same method was applied also to information obtained from the April 1954 Current Population Survey. Although independently derived, the spacing data from the two enumerations can be used to form a comparable time series for the war and postwar years.

Methodology

In the course of the 1950 Census, information was obtained on the ages and present marital status of all persons in the household. Sample or supplementary questions provided information on the total number of children ever born alive to the mother, whether she was married more than once, and the number of years in her present marital status.[4] From the total population from which such information was obtained a selection was made of women who were aged 15 to 44 years, married once, living with husband, and all of whose children were living and present in the household. This is the group for which child-spacing data were developed.

The basic procedure involved the conversion of the cross-sectional enumerated information for this group to longitudinal data. In other words, the interrelated age information for the children and the mother was transformed to a year-of-birth and year-of-marriage basis, and recorded on a family card showing chronologically the wife's fertility status and experience in each year since marriage. Child-spacing information was then derived by differencing the years in which the successive events occurred.

For example, in the case of a woman who was married in 1946 and gave birth to her first child in 1948, this birth was counted as occurring after an interval of two years. If she subsequently gave birth to a second child in 1949, the latter event was tabulated as occurring after an interval of one year since the previous birth, or three years since marriage.[5]

[4] This information was not collected with child-spacing analysis in mind, and its utilization for this purpose, therefore, involves some limitations which can be avoided in future studies by anticipating certain specific requirements.

[5] Strictly speaking, the years of occurrence (1946, 1948, and 1949) are not the calendar years, but the 12-month periods beginning with mid-April of the calendar years specified.

The restriction of the universe to women married once, was dictated by methodological considerations. According to the foregoing procedure, information on the spacing of the first child could only be obtained if the age of the mother when first married was also available. However, this age could be derived only for women who had married once. For women married more than once, the 1950 Census schedule asked for the number of years since last marriage.

Likewise, it was necessary to limit the universe to women whose children were all born alive and living in the household at the time of enumeration. The absence of information for any child leaves a gap in the mother's enumerated fertility history, and precludes identification of the birth order of each child. Such identification is necessary for the derivation of child-spacing data.

The foregoing considerations also applied in connection with the mechanics of obtaining spacing data from the April 1954 Current Population Survey (CPS). However, in the case of the latter enumeration, the supplementary questions were designed with this study in mind, and information was collected on age at *first* marriage, rather than age at *last* marriage. This made it possible to determine the spacing of first births for women married more than once. But, to maintain comparability with the data derived from the 1950 census, the main series of tabulations from the CPS were limited to *women married once.*

The family fertility information from the 1950 Census and the April 1954 CPS was tabulated to provide two basic series of data:

1. A frequency distribution of women by fertility-risk status as of the beginning of specified years, in terms of age, parity, and interval; and
2. A frequency distribution of women by their fertility experience during the year of observation.

Each of these tabulations can be used independently to obtain

various measures of fertility experience. In addition, they can be combined to form age, parity, interval specific annual birth rates. For this purpose, the first tabulation provides the denominator and the second the numerator.

In principle, data were obtained from the CPS showing the fertility-risk status and experience in each of the four years of observation ending in mid-April 1951, 1952, 1953, and 1954. Since there were only about 7,000 cases in the sample, and in view of the extensively detailed cross-classifications involved, the decision was made to consolidate the data for these years.

In the tabulation of child-spacing data from the 1950 Census, the principle of consolidating several years of experience is also being followed. Present plans call for the tabulation of data for these groups of years:

April 1941–March 1944,
April 1944–March 1946,
April 1946–March 1948, and
April 1948–March 1950.

A total of 164,000 family cards were obtained from the decennial census. However, a lesser number is available for use in these earlier periods. This stems from the fact that the cohort selected for study was limited to women 15 to 44 years of age at the time of enumeration. The age composition of this group becomes successively younger as the cohort is tabulated with reference to earlier points in time, and an increasing number are excluded because they then drop below 15 years of age. As of 1941, for example, the cohort was 6 to 35 years of age.

Some Findings

The tabulation of child-spacing statistics from the 1950 Census is still in process. However, data are now available from the 1954 CPS, and some preliminary findings are presented here, for the purpose of illustrating the kinds of measures obtained.

One such measure is the age, parity, interval specific birth

rate. The age, parity birth rate—omitting the specification of interval—defines the female population at risk of pregnancy in terms of the age of the woman and the order of birth to which she is subject. An age-parity-interval specific rate goes further in delineating the risk group, specifying the length of time elapsing since the previous birth or marriage. This becomes important when comparing fertility over a period of years and in assessing the extent to which postponement or catching-up of births affects changes in the overall rate.

The data for 1950–1954 show a rate of 197 first births annually per 1,000 zero-parity women (Table 1). However, among women of zero parity in the one-year interval group; i.e., those who had married in the preceding year, the rate was 285 per 1,000, and in the two-year interval group, 451 per 1,000. As would be expected, the first birth rate declined with increasing intervals, dropping to 27 per 1,000 among those married 10 years or more.

In addition to providing rates for zero parity women, the data throw light on the rate at which women of first and higher parity give birth after specified intervals have elapsed since their previous childbirth. For instance, among two-parity women who had given birth in the preceding year, the third birth rate during the year of observation was 127 per 1,000. Of those who had given birth two years before, the corresponding rate was 188 per 1,000. Obviously, as the interval increases the population base becomes more selective in terms of fertility potential, since it includes a growing proportion of women who cannot, or do not choose to have another child. On the other hand, such factors as birth control, and the normal length of time it takes to conceive, as well as unusual circumstances like the wartime absence of men in the armed forces play an important part in determining the pattern of these rates.

The data derived from this study can also be used to obtain percentage distributions of births of specified order, according to the time elapsed since the previous birth, or since marriage.

Age of Woman and Interval Since Previous Event	Total	Parity					
		0	1	2	3	4	5 and Over
Total Women 15–44 Years Old	156	197	187	108	109	129	218
Interval—							
1 Year	184	285	192	127	120	141	150
2 Years	287	451	291	188	184	203	334
3 Years	230	273	307	179	147	130	256
4 Years	178	203	255	130	113	155	...
5 and 6 Years	131	164	189	92	84	85	...
7 to 9 Years	55	84	73	35	36	42	...
10 Years or More	23	27	21	23	14	0	0
Women 15–24 Years Old	320	366	293	254	286	...	...
Interval—							
1 Year	263	311	246	205	220	...	...
2 Years	420	514	326	334	...	...	0
3 Years	354	338	373	324	...	...	—
4 Years	280	268	326	...	...	—	—
5 Years or More	210	229	...	...	0	—	—
Women 25–34 Years Old	163	165	210	126	130	173	247
Interval—							
1 Year	125	203	128	93	100	177	153
2 Years	237	335	281	167	189	237	396
3 Years	220	222	299	187	155	159	...
4 Years	196	185	273	162	133	...	...
5 Years or More	112	113	151	81	90	87	...
Women 35–44 Years Old	42	24	39	38	45	56	171
Interval—							
1 Year	68	...	...	50	72	...	...
2 Years	113	...	...	64	48	...	...
3 Years	95	...	135	68	87	...	...
4 Years	69	...	68	47	80	...	...
5 Years or More	27	16	28	32	27	44	72

Table 1. Birth rates per 1,000 women by age, parity, and interval since previous childbirth, or, if no previous birth, since marriage: United States annual averages for the period mid-April 1950 to mid-April 1954. (Spacing in terms of live births. Women married once, husband and all children ever born present in household in April 1954. Age as of end of each year in period. Data exclude the relatively few births at intervals of less than 1 year from marriage of women or from a previous childbirth.)

Source: April 1954 Current Population Survey.
Symbols: Three dots (. . .) Rate not computed because population base was less than 200,000
One dash (—) Both population base and numerator were zero in frequency table.

They show that among women giving birth for the first time, 27 per cent did so in the year following marriage, and 33 per cent in the second year. The proportion dropped off sharply thereafter, with only 12 per cent giving birth to a first child in the third year, and 7 per cent in the fourth (Table 2).

As will be explained later, a distribution of births by discrete intervals of elapsed time cannot be obtained directly from the data. However, a method is available for estimating this distribution in terms of 12-month intervals, and of deriving therefrom measures of the estimated average spacing.

With respect to births classified by type of work of father,

Table 2. Number of births of specified order and per cent distribution by interval since mother's previous childbirth or if no previous birth, since marriage: United States, mid-April 1950 to mid-April 1954. (Spacing in terms of live births. Women married once, husband and all children ever born present in household.)

Interval Since Previous Event	Total	Order of Birth: Mother's—					
		First Child	Second Child	Third Child	Fourth Child	Fifth Child	Sixth or More
Number of Births (Thousands)	10,244	3,425	3,160	1,995	907	386	371
Per Cent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 1 Year	2.8	5.5	0.5	1.6	3.1	4.4	0.5
1 Year	23.4	27.0	20.5	20.5	24.1	29.3	24.0
2 Years	29.4	32.8	26.4	25.3	28.8	29.5	46.9
3 Years	16.9	11.8	21.1	19.7	17.2	12.7	15.1
4 Years	10.1	6.7	13.0	11.9	10.5	11.4	5.9
5 and 6 Years	10.7	8.3	12.5	12.9	11.2	9.1	6.5
7 to 9 Years	4.2	4.3	4.1	5.2	4.1	3.6	1.1
10 Years or More	2.5	3.6	1.9	3.0	1.0	0	0
Median Spacing (Years)	2.3	1.5	2.6	2.6	2.3	2.1	2.0
Live Births to All Women, from Annual Vital Statistics Corrected for Underregistration (Thousands)[1]	15,444	4,660	4,460	2,840	1,496	780	1,208
Per Cent of Births for which Spacing is Shown Above	66.3	73.5	70.9	70.2	60.6	49.5	30.7

[1] Derived from 1/4 of births in calendar year 1954, all of births in calendar years 1953, 1952, 1951, and 3/4 of births in calendar year 1950.
Source: April 1954 Current Population Survey.

the data show a median interval between marriage and first birth of about 2.3 years for the white-collar group, 2.0 years for the manual or service workers, and 2.0 years for the farmers and farm laborers. A similar association is observed between income and the spacing of first births, the median interval increasing from 1.6 years at the $2,000 level, to 2.3 years among those earning $5,000 or more. However, this appears to be largely a function of the differential age composition of the respective income groups. When the data are standardized for age, little relationship between income and spacing interval is evident.

Nature and Limitations of the Data

Representativeness. Restricted as it is to women with husband and all children ever born present in the household, this population tends to be selective in terms of age and parity. Obviously, it will include a larger proportion of younger women with smaller and younger families than is found in the total married female population of reproductive age (Table 3). The child-spacing patterns, no doubt, are also different for the selected group.

The Time Unit Used to Measure Intervals. The interval classifications are shown as "one year," "two years," etc. As previously indicated, these numbers represent the difference

Table 3. Per cent of women who had all their children ever born living with them in April 1954, for women 15 to 44 years old, married once and husband present, none to four children ever born, by age of women, for the United States. (Data partly estimated.)

Age of Woman in 1954	Number of Children Ever Born				
	No Children	1 Child	2 Children	3 Children	4 Children
15 to 19 Years	100	98	0.0	0.0	0.0
20 to 24 Years	100	98	95	81	0.0
25 to 29 Years	100	94	91	86	79
30 to 34 Years	100	92	95	84	76
35 to 39 Years	100	89	89	77	70
40 to 44 Years	100	74	72	56	38

Source: April 1954 Current Population Survey.
Symbol: 0.0 means percent is more than 0, but less than 0.5.

obtained by subtracting the "calendar" years in which the successive events occur. The precise duration of time in terms of months or days elapsing between these events is not known, since information is lacking as to when, within the respective years, these births occurred. In the case of intervals between successive births, the one-year interval actually represents a range of from about 9 months to 23.9 months, the two-year interval 12.0 to 35.9 months, the three-year interval 24.0 to 47.9 months, and so on. The result is a series of overlapping intervals, each of which, except the first, covers a spread of 24 months.

Approximate transformations of these data to a frequency distribution involving discrete class intervals of elapsed time have been made by assuming that the one-year interval represents a period of 6.0 to 17.9 months, the two-year interval 18.0 to 29.9 months, and so on. The theoretical basis and the degree of reliability of this transformation will be discussed more fully in a forthcoming report on child spacing.

In processing data from the April 1954 CPS, it was necessary to subtract the age of the woman at marriage from her age at the survey date to determine the number of years she had been married. The "calendar" year of marriage could then be determined by counting backwards from the survey date the number of years the woman had been married. (No similar subtraction was necessary in processing 1950 Census data which obtained direct information on number of years the woman had been married). Because of the extra subtraction, the intervals *between marriage* of the woman and the *birth of a child* have the following interpretation: the two-year interval shown in the tables actually represents a range of about 9 months to 36 months, the three-year interval 12 to 48, the four-year interval 24 to 60, and so on. The result is a series of overlapping intervals, each of which, except for the first two, covers a spread of 36 months. (Tables 1, 2, and 4.)

A transformation of these data to a frequency distribution involving discrete class intervals of elapsed time may be made

by assuming that the one-year interval represents a period of 9.0 to 11.9 months, the two-year interval 12.0 to 23.9 months, the three-year interval 24.0 to 35.9 months, and so on. A more precise transformation could be achieved by a mathematical interpolation and re-combination of the data, but the method is beyond the scope of the present paper.

Socio-Economic Variables. Tables from the 1950 Census on fertility by occupation of husband were prepared for each of the years beginning with April, 1941. However, the occupation by which each family was classified in these earlier years was not the husband's contemporaneous occupation, but the one he held at the time of the 1950 enumeration. The same is true also for other characteristics such as income, place of residence, and whether husband was present in household; neither of these could be reconstructed historically on the basis of cross-sectional information enumerated in 1950.

Table 4. Spacing between marriage of mother and birth of children in period mid-April 1950 to mid-April 1954, for women married once, husband and all children ever born present in household in April 1954. (Data exclude children whose ages were equal to mother's marriage duration.)

Spacing Interval since Marriage[1]	Total	Order of Birth: Mother's—					
		First Child	Second Child	Third Child	Fourth Child	Fifth Child	Sixth or More
Number of Births (Thousands)	9,961	3,235	3,145	1,964	879	369	369
Per Cent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 Year	9.5	28.6	0.8	0	0	0	0
2 Years	14.3	34.7	9.7	0	0	0	0
3 Years	10.7	12.5	18.3	4.3	0	0	0
4 Years	9.7	7.1	16.3	11.0	0.6	1.6	0
5 and 6 Years	19.1	8.7	26.2	28.5	24.1	4.1	2.4
7 to 9 Years	17.0	4.5	18.1	27.9	30.5	35.0	8.1
10 to 14 Years	14.3	3.1	8.5	21.8	33.0	45.8	45.8
15 to 19 Years	4.7	0.5	1.7	6.1	10.9	11.7	37.4
20 Years or More	0.7	0.2	0.4	0.4	0.9	1.9	6.2
Median Spacing (Years)	4.6	1.6	4.4	6.7	8.5	10.0	13.3

[1] Median spacing based on data including the events occurring in the same year as marriage is 1.5 years.

Source: April 1954 Current Population Survey.

Sampling Error. The problem of sampling error is an important one in these studies. The consolidation of several years of data, of course, reduces the amount of sampling variability associated with individual cell frequencies, but any inferences regarding the significance of small differences should be made with caution.

Notwithstanding the foregoing qualifications, the method of deriving child-spacing data from enumerated age information as outlined herein is believed to have worthy potentialities and, in the opinion of the authors, merits further study and development.

ANNOTATIONS

MIGRATION AND MENTAL DISEASE[1]

THE declared purposes of this monograph were to supply sound statistical material for a solution of past debates on the relation between mental disease and migration, and to demonstrate one use for the 1940 Census tables on five-year migration status. The result is clear, striking, and elegantly presented, certainly adding to our store of data on the subject; and yet one may question whether the authors have really attained their aims.

Based on 1939–1941 first admissions in New York State, the main findings are as follows:

(a) migration from overseas is now associated with almost no excess of mental hospitalization over the native born;

(b) migration from other states of the United States into New York is accompanied by a marked excess of mental hospitalization as compared with those born in the State;

(c) the incidence of such hospitalization is higher in those migrants who were outside of New York State five years previously than in those who were within the State at that time, an exceptional proportion of the former appearing to have been admitted within a year of their (latest?) arrival.

These findings apply at virtually all ages, in both sexes, in whites and nonwhites, and in metropolitan and nonmetropolitan areas. They are in striking contrast, almost disagreement, both with Malzberg's own earlier studies on immigrants and more specifically with Odegaard's Norwegian study on internal

[1] Malzberg, Benjamin and Lee, Everett S.: MIGRATION AND MENTAL DISEASE. A study of First Admissions to Hospitals for Mental Disease, New York, 1939–1941. New York, Social Science Research Council, 1956, 142 pp.

migration. Being more carefully done than any previous study —for instance, private hospital statistics are now included— they should clarify matters, but it proves less easy to say this.

The problem of a relationship between migration and mental disease dates back to the observation almost a century ago that the proportion of immigrants in United States mental hospitals was higher than that in the general community. At first, theories to account for this all implied a secondary association with some such factor as the dumping of paupers by European governments, a difference in racial incidence, and the abnormal age distribution of the immigrant population. But when these had been investigated and allowed for, the age factor having accounted for the major part of the discrepancy, a small differential between immigrant and native-born rates remained. It then seemed possible that the migratory process itself, especially the phase of acculturation, might have a direct effect on mental stability, but an alternative theory was that emigration will tend to attract a rootless, schizoid type of individual (and hence a potential schizophrenic patient) more than the person with rich social relationships (in whom schizophrenia is less common). Clearly, the latter effect, if it existed, ought to be found in internal migrants as well as in immigrants whereas the former should not, or at least to a much lesser degree; and when Odegaard demonstrated that migrants within Norway had a lower, not a higher, rate of mental hospitalization than nonmigrants the schizoid personality theory received a severe blow.

The present study, from one angle, can be considered as an attempt to confirm the Norwegian findings and, as we have seen, its findings are far in the opposite direction. In fact, however, it is not clear that the two sets of data are comparable at all. Odegaard took migration in different directions throughout most of Norway; the present study compares the residents of only one state with migrants from all others. Moreover, New York State has a higher standard of living and a higher standard of mental care than most other states and both these points must be relevant, for major mental disorder has been shown to increase with declining community socio-economic level, and sick people do tend to move to a place where they think they

will get better medical care. Next, both migrants and mental patient populations tend to be atypical in respect of social class and occupation, the quite marked difference in migrant and nonmigrant rates in the present study being still much smaller than the difference between the equivalent rates for certain occupations. And there is no justification for thinking that internal migration in Norway had the same characteristics as in the United States. Most important of all, however, are the questions of pre and post-migration human environment, and of motive. It is theoretically quite feasible that under one set of circumstances the less competent members of a community will be squeezed out of it by competition for livelihood (or tempted out by some Eldorado myth) whereas under another set of circumstances the weaker are protected and it is the more competent who are sent out by the community to seek their fortune, in the hope that they will send money home. The question therefore arises not only whether these two specific studies are comparable, but more importantly whether any two studies of migration and mental health can be compared unless the complete conditions surrounding the migration are defined and weighed. It may be that the most useful result of the present work is to lead us to question the validity of using migration as a single concept in socio-psychiatric studies.

Apart from this major question of validity of concept, Malzberg and Lee offer us many points for cogitation. Why is it, for instance, that immigrant nonwhite males are now (1940) showing a lower overall rate of mental disorder than native-born nonwhites? Is it because the Jamaican Negro immigrant is better educated than his United States counterpart, or because he has grown up in an atmosphere where the struggle for equality is less bitter, or because the immigration medical screening is now so efficient? Why, in 1930, were the rates for immigrants over the age of 50 never less than twice the rates for native born whereas in 1940 this difference has almost disappeared? And why is it that the affective psychoses are now coming to the fore among recent migrants whereas formerly one tended to think of these conditions as being relatively unassociated with social variables? There is much to think about in these findings.

A similar study by the authors using the 1950 Census residence data is now reported under way and it is to be hoped that means will be found to resolve some of the problems with which the present study faces us. While it may not be possible to analyze the social class rates of migrants and nonmigrants it should at least be possible to give us the rates for migrants from different states. Also, it should be possible to divide up more usefully the rag-bag of "other psychoses" so that one may gauge to some extent how far the migrant suffers from more transitory or more chronic conditions; perhaps one might even get something on length-of-stay or outcome. But before one asks for more and more details it might be as well for us to reconsider the validity or usefulness of the concepts on which such questions are based.

H. B. M. Murphy

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HEALTH AND MEDICAL CARE IN NEW YORK CITY[1]

For almost thirty years, the only comprehensive data available on the costs and other financial aspects of provision of medical care for families in the United States, have been in the reports of the Committee on the Costs of Medical Care, 1928–1931. Unfortunately, a great depression, a recovery, a war or two, and other social and economic upheavals have lessened the value of the 1931 data of the Committee on the Costs of Medical Care in understanding present needs in medical care and in planning adequate service programs. It is true that other studies have contributed to the sum of knowledge of how, where, for what, of whom, and even why the North American family purchased health services. It is also true, however, that most of these other studies have been limited in approach, circumscribed in scope, and, occasionally, selected for

[1] Report of the Committee for the Special Research Project in the Health Insurance Plan of Greater New York: Health and Medical Care in New York City, published for the Commonwealth Fund. Cambridge, Massachusetts, Harvard University Press, 1957, ix+275 pages, $7.50.

their apparent ability to bolster one or another side of controversial issues. This is not to say that the absence of valid and extensive recent data prevented endless theoretical discussions, but it made them productive often of more heat and less light.

Now, within the span of a few years, three new studies, one under way and two completed, will go far toward closing the gaps in our knowledge of health services and their cost. First, the National Health Survey of the Federal government will yield a wealth of information on health and disease in persons in the United States. Second, Anderson and Feldman's report for the Health Information Foundation[2] has provided a comprehensive nationwide picture of medical costs actually incurred by families and the extent to which health insurance meets these costs, with a great deal of data hitherto lacking. Third, extensive in depth and giving essential detail rather than broad geographic coverage, the report of the Committee for the Special Research Project in the Health Insurance Plan of Greater New York, HEALTH AND MEDICAL CARE IN NEW YORK CITY,[3] will, when joined to the others, constitute one of the significant sociological indexes of the mid-century.

Parran, in his foreword to the HIP report, says, "the present study raises almost as many questions as it answers." I would go further, and say that it raises many more questions than it answers, but what good study does not?

Most people are by now well aware that the Health Insurance Plan of Greater New York, started in 1947, was designed "to be a practical demonstration of the values to families with moderate incomes of comprehensive prepaid medical care rendered by group practice units called medical centers." Payment for service is customarily met by joint contributions from employer and employee. The largest single employer contracting with the Plan was and is the City of New York. The group practice units are medical partnerships compensated by capitation payments for enrollment, not fees for medical services. Hospital services are obtained by the requirement that all sub-

[2] Anderson, Odin W., Ph.D., and Feldman, Jacob J.: NATIONAL FAMILY SURVEY OF MEDICAL COSTS AND VOLUNTARY HEALTH INSURANCE, A NATIONWIDE SURVEY, for the Health Information Foundation. New York, N. Y., McGraw-Hill Book Co., 1956, 251 pages, $6.50.

[3] *See* footnote 1.

scribers must carry hospital insurance. Medical services are comprehensive, and include home, office, and hospital services by general practitioners and specialists, plus auxiliary services, with relatively few exclusions. Accent is placed on preventive services, as well as care for illness and injury, and great efforts are made to safeguard the high quality of service.

Many questions faced the organizers of the Plan at its inception for which data for answers were meager or lacking, not only for the New York City operation, but for the country. These were practical questions of organization, acceptance by professional and lay persons and groups, and utilization of services, as well as questions of possible abuse of the extensive benefits included in the contract, use of preventive services, and in general, the effect of the plan on the health and health habits of the subscribers. Though the Plan built mechanisms for research into its administrative machinery, a truly searching inquiry of the need and demand for services called for a more substantial field study than regular statistical reporting could provide. In addition, in statistical terms very little was known about the details of the private practice of medicine in New York City. Hence the present study was devised to seek these answers. It was designed under the auspices of a distinguished planning committee chaired by Selwyn D. Collins, Ph.D., and an equally distinguished steering committee under the chairmanship of Lowell J. Reed, Ph.D., supported by funds from the Rockefeller Foundation and the Commonwealth Fund.

The Household Survey portion of the project, carried out in the Spring of 1952, resulted in the collection of data on 3,235 households with one or more persons enrolled in HIP, and 4,190 New York City households not in HIP. The HIP households, 2.7 per cent of HIP membership, had 10,981 persons, of whom 8,040 had HIP coverage, while the New York City households, comprising 0.2 per cent of the City's population, had 13,558 persons. The sample design and the interviewing process are discussed fully in the appendix of the report. An interesting innovation introduced into this study and used in some others, like the California Morbidity Research Project, was the inclusion in the interview of a battery of questions approaching the matter of illness in the family from several points of view in

order to probe the memory of the respondent, as it is well known that ordinarily morbidity data are substantially under-reported in most surveys. For example, in the Hunterdon studies of rural health,[4] the families' reports of illnesses agreed closely with the diagnoses of their family physicians when the latter were made aware of the interview content, but were very considerably under-reported when compared to the findings of examinations performed by the team of outside clinical specialists doing part of the study, particularly for certain conditions like diabetes and cancer.

The schedule of questions asked about the illness status of each person in the household on the day previous to the interview, about all illnesses that had occurred within an eight-week period previous to the interview, and about illnesses in 1951 that required hospitalization over at least one night, or a period of seven days at home in bed. It also inquired about defects, minor chronic conditions, some physical problems not ordinarily thought of as "illness" (e.g. sterility, obesity, menopause), check-ups and routine health examinations, certain specific symptoms, and a separate question on a set of nine chronic conditions. A columnar form was used, with a separate column for each member of the household, and in certain cases the interviewer prepared a special supplementary schedule when an illness or disability was reported. While the frequency of illnesses, injuries, and other medical conditions found in this survey cannot be compared exactly with the findings in other surveys, the frequency appears to be greater than the amount found in general illness surveys conducted prior to 1950, so the general objective of securing more adequate morbidity data was considered at least partially successful.

The Household Survey had several specific objectives. First, it was designed to examine the extent of the New York City population coverage by insurance for hospitalization and medical care, and to compare the demographic and social character-

[4] (a) Trussell, Ray, M.D., Elinson, Jack, Ph.D., and Levin, Morton, M.D.: Comparison of Various Methods of Estimating the Prevalence of Chronic Disease in a Community. The Hunterdon County Study. *American Journal of Public Health*, February, 1956, 46, pp. 173–182; (b) Elinson, Jack, Ph.D., and Trussell, Ray, M.D.: Some Factors Relating to the Degree of Correspondence for Diagnostic Information as Obtained by Household Interviews and Clinical Examinations. *American Journal of Public Health*, March, 1957, 47, pp. 311–321.

istics of the groups being studied. It was known in advance that there were some differences between the HIP enrolled population and the City population. These population groups are compared early in the report for a number of demographic characteristics, and thereafter demographically comparable groups were used wherever possible in the examination of the data. Second, the Household Survey enabled comparison of the groups with respect to their medical needs; medical care given, including preventive services; unattended illnesses; some broad indexes of quality of care received; extent to which medical care is sought; and some estimates of total morbidity and needed health services for New York City's population. The designers of the study hope the Survey has made a contribution to improved methodology in investigations in these fields of interest.

Studying the insurance status of those known in advance to be HIP enrollees, it is interesting to find that 8.9 per cent of enrollees did not report (or presumably know?) they actually were enrolled in HIP, and 3.4 per cent actually reported they had no medical care insurance! These are significant figures, especially in light of the fact that HIP enrollees are probably subject to more educational and informational material than members of any other medical care insurance plan.

In the New York City group, 54.6 per cent of persons in the sample reported having some type of medical care insurance. The accuracy of this figure is questionable in view of the responses of known HIP enrollees just described. The bulletin of the Health Information Foundation, discussing the findings of the NATIONAL FAMILY SURVEY OF MEDICAL COSTS AND VOLUNTARY HEALTH INSURANCE, for the period of June and July 1953, reported that 57 per cent of the families studied nationwide, but 70 per cent of urban families had "some coverage." The HIP Research Committee accepts the comparison with these figures as indicating that the returns from the New York City survey appear to be reasonably accurate, but others might question this conclusion.

The survey presents further data on various demographic characteristics of each sample group, and comparisons are related to insurance status of the household members.

One of the significant comparisons in the study of data related to physician contacts by HIP members and members of other New York City groups is on the percentage of persons in each group who saw a doctor, by number of times the doctor was seen. More of the former than of the latter saw a doctor in 1951. However, HIP enrollees, other members of their families not covered, and the general population had generally about the same experience in terms of the number of times they saw a doctor during the year. This should answer many fears and questions on "over-utilization" of medical service when economic barriers to physician visits are removed.

It is claimed that persons served by group practice units do not establish a "patient-family physician" relationship because complete free choice of physicians is not available. In this report, the reverse appeared to prevail, since 77.9 per cent of persons in the New York City sample were in families who claimed to have a family physician, while 88.7 per cent of the HIP enrollees were in families who claimed to have a family doctor. (The panel method in HIP permits the selection of a general practitioner who continues with the family as a family physician.)

As might have been expected, HIP families tended to use pediatricians for the care of children under age six more than did families in the City sample—63.3 per cent compared with 42.4 per cent.

A large mass of material is presented on the medical conditions reported, characteristics of the persons with medical conditions, the medical care they sought and received, frequency of specific illnesses and degree of disability resulting, for the groups studied. This information will undoubtedly be of great value, since much of it was hitherto unknown, especially with the degree of accuracy provided in this study. The data and their implications are discussed in detail, including any light thrown on the possible effect of a prepaid medical care plan on the health of its enrollees. For example, the HIP enrollees reported a higher frequency of chronic illness than members of the general City population sample among persons in the labor force, during the eight-week period preceding the Household Survey. It is suggested that HIP enrollees can more readily

see a doctor and thus can control illness more easily and remain in the labor force. Further, since a large proportion of HIP enrollees are city employees enjoying liberal sick-leave privileges, their illness does not necessarily remove them from the labor force. Neither of these hypotheses can be supported or rejected from the data available. Many of such factors discussed point up the need for further and deeper investigation for additional significance.

The data on hospital experiences obtained by the Survey need cautious interpretations, and there is discussion in the report of the factors relating to reliability of the survey findings in this field. Comparison of hospitalization experience developed the unexpected finding of a hospitalization rate of 7.5 per 1,000 persons for those without reported hospitalization coverage, compared with 6.2 per 1,000 persons for those with such insurance. Most published data from other studies indicate higher utilization by insured persons. To check this unusual finding, Blue Cross data for New York City were obtained. These yielded an annual utilization rate of 11.4 persons per 1,000 covered, or somewhat higher than the HIP survey count. Nothing in the latter data suggested that those not covered should have a rate higher than the insured group. The report speculates that the difference may be due to such factors as poor knowledge or recall on the part of the respondents, faulty recording by enumerators, or possibly the peculiarity of the New York City population. In view of the unanswered questions, the report wisely does not later classify data on hospitalization by insurance status, except in discussion of length of hospital stay.

In view of the observed and unexpected findings of reports of hospitalized illness, usually thought to be more completely reported than other illness, it is interesting to speculate on the reporting of non-hospitalized illness as a reflection of the actual occurrence of such illness.

Although dental services are not included among the benefits for enrollees under HIP contracts, a comparison was made of the dental care received by the groups under scrutiny. More persons in the HIP population were receiving dental care at the time of the survey than persons in the general population.

There were few other significant differences, but much general information is presented on dental services, as on medical services.

Regarding preventive services, there were some implications that HIP enrollees were receiving more health care and guidance than their counterparts in the general population, but the differences brought out in this survey were not great. The report acknowledges the difficulty of determining data on personal preventive services.

In conclusion, this fascinating and provocative report will provide factual data for discussion and questions for deeper investigation for a long time to come.

NATHANIEL H. COOPER, M.D.

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POPULATION REDISTRIBUTION AND ECONOMIC GROWTH[1]

WHEN a prominent economist with a special interest in economic development and an equally well-known sociologist with a special interest in migration team up to direct a study of the *interrelations* of population redistribution and economic growth, the results are rather bound to be good. This is particularly true when the principals in the case are Simon Kuznets and Dorothy S. Thomas and when they have the help of able young assistants.

The results of this project are being published in two volumes, under the general title POPULATION REDISTRIBUTION AND ECONOMIC GROWTH, UNITED STATES, 1870–1950. The first volume appeared in 1957 and bears the subtitle METHODOLOGICAL CONSIDERATIONS AND REFERENCE TABLES. It contains an Introduction by Kuznets and Thomas, and four sections prepared by the contributing authors.

[1] POPULATION REDISTRIBUTION AND ECONOMIC GROWTH, UNITED STATES, 1870–1950. Vol. 1. METHODOLOGICAL CONSIDERATIONS AND REFERENCE TABLES, by Everett S. Lee, Ann Ratner Miller and Carol P. Brainerd, and Richard A. Easterlin. Prepared under the direction of Simon Kuznets and Dorothy Swaine Thomas. Philadelphia, The American Philosophical Society, 1957, xviii + 760 pp., $5.00.

In their introduction, Kuznets and Thomas define population redistribution as "changes in the proportional share of a country's population in fixed area limits." They define economic growth as "long-term sustained increase in the total population and total per capita economic product, in constant prices." Using these definitions they describe the scope of the study as being concerned with the interrelation of four types of trends in the United States since 1870. These are population redistribution, redistribution of the labor force, redistribution of manufacturing activity, and redistribution of income. These represent the sections prepared by contributing authors as follows: "Migration Estimates," by Everett S. Lee; "Labor Force Estimates," by Ann Ratner Miller and Carol P. Brainerd and "Estimates of Manufacturing Activity" and "State Income Estimates" by Richard A. Easterlin.

Lee's series of data on migration (pp. 9–362) includes net migration by state, color, sex, and age. State of birth materials are also used to indicate origins and destinations. An urban-rural series is also given.

The labor-force estimates (pp. 363–634) by Miller and Brainerd consist of three basic series: "the number of persons in the labor force, or gainful workers, by sex, for selected age groups . . . ; the distribution of these persons between agricultural and nonagricultural pursuits, again by sex . . . ; and their distribution among a number of major industrial categories" (p. 363).

Regarding the estimates of manufacturing (pp. 635–702) Easterlin states that the data "relate to that part of manufacturing activity (aside from certain borderline activities) which is carried on in profit-seeking establishments operating under the 'factory system,' the latter defined as production for the general market." However, certain adjustments were necessitated by census changes of concepts and, as in other series, numerous decisions had to be made regarding the matters of classification.

Easterlin's state income estimates (pp. 703–757) are broken down by source into the categories "service income," "property income," and "other." The "service income is subdivided into 'agricultural' and 'nonagricultural.'"

Since the offset process was used in publishing this book and since the book includes many long tables it seems appropriate to mention that well deserved thanks were given to "Audrey N. Barclay for planning and preparing the final typescript and drafting the charts."

The first volume should be of much use to specialists who will find the data of value in their own research. There doubtless are many others who will look forward to the analyses promised in Volume II which is expected some time in 1958. The whole project will easily be the most thorough study of the subject since Goodrich's MIGRATION AND ECONOMIC OPPORTUNITY, published in 1936 and prompted largely by depression conditions but concerned also with historical trends.

CLYDE V. KISER

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SOUTHERN RACE PROGRESS[1]

THIS book is concerned with the life of Thomas Jackson Woofter during a period of fifty years when he was engaged in observing the movements and issues in race relations and actively at work in a number of movements which had as their purpose the improvement of human relations in the South. By his own admission SOUTHERN RACE PROGRESS represents his effort to "balance the total liabilities and assets of race relations rather than becoming obsessed with one aspect to the neglect of others." This objective gives the book a peculiar relevance, since it appears at a time when integration, school desegregation, and civil rights are subjects of controversy in large areas of the nation. It is also the story of what moderate men of good will north and south achieved in their efforts to find a solution to many of the problems which have perplexed the South. It is an eloquent expression of faith in the efficacy of voluntary cooperation, and a plea for the continuation of

[1] Woofter, Thomas J.: SOUTHERN RACE PROGRESS: THE WAVERING COLOR LINE. Washington, D. C., Public Affairs Press, 1957, 180 pp., $3.50.

the resort to this method of finding a way out of the "fix we are in."

The student interested in cooperation as well as the layman concerned with the manner in which men are influenced to work together will find this book a valuable source of information. It also gives interesting insights into the changes which have occurred in race relations in the South. For SOUTHERN RACE PROGRESS is set against a background at the turn of the century when the South was beginning to feel the impact of extraordinary technical developments and the racially tolerant but paternalistic aristocrats who had ruled the South during reconstruction, "were displaced by the crackers led by demagogues who made race hatred their chief stock in trade." In these circumstances two of its leaders, Henry W. Grady and Booker T. Washington, who were "dedicated to easing tensions and bitterness between South and North, and between black and white so that a sick society could become whole" popularized the doctrine of separate but equal which the Supreme Court at that time had declared legal.

The book covers a wide variety of topics in some seventeen chapters and especially concerns itself with "strenuous but unsuccessful efforts of public officials to equalize educational opportunity, together with the valuable assistance they received from organizations and foundations." The author is aware that many experts will feel that the topics included in the book are superficially treated. One, on the other hand who lived in close contact with the events and people included in the book, will feel that this moderate Southerner, whose family did not teach him to hate but did inspire in him loyalty to a cause, has given an adequate treatment of the subjects for the purposes which he has in mind. His account of the establishment and work of the great educational foundations is informing. His appraisal of the work of the men and women who may be regarded as the pioneers in the field of interracial cooperation is generous and sympathetic.

The reviewer, who once worked with the author when he was making a study of Negro problems in cities,[2] is not surprised

[2] *See:* Woofter, Thomas J.: NEGRO PROBLEMS IN CITIES. New York, Doubleday, Doran & Company, 1928, 284 pp.

that he makes the convictions which grew out of his studies, friendships, and practical experiences, a part of the record. He is sure, for example, that the mutually acceptable basis of cooperation which is necessary for progress is wide and that it will endure in spite of controversy. A second conclusion is one which is so seldom admitted by Southerners that it is worth quoting:

> If left to its own devices the South will progress but slowly in the development of the Negro; hence the value of an occasional application of the needle of criticism to puncture complacency.

His ultimate appeal is also to great moral and religious imperatives, for he tells us that in this situation the average American needs to be less concerned with whether this or that action conforms to the Supreme Court rulings and more concerned with whether it squares with the principles of the Supreme Ruler of the Universe.

The author's habit of summarizing the significance of events is also stimulating. Thus although his formal education contained only one course in which there was any reference to the Negro save as a cause of the Civil War, that course which E. P. Brooks taught in Georgia History and Economics stimulated his interest in the problems of the region and stood in glaring contrast to the informal education which he received at the hands of his fellow students at the University of Georgia. The gist of that informal education was that the Negro was racially inferior and hence should be kept in his place.

And again Chancellor David Barrow of the University, who urged him to accept the first Phelps Stokes Fellowship for the study of race, launched him upon a period of study and a career which occupied his life for a period of fifty years.

Of the effectiveness of the long battle of the South under the leadership of the Interracial Commission to wipe out lynching, "the darkest phase of race relations" he tells us that while the time has not yet come for complete relaxed complacency, on the whole, however, the South has shown that it can cope effectively with race friction when it has made up its mind.

It is also his judgment that migration into the Southland

and out of the South "is at the root of a revolution in race relations. It . . . has exerted a healthy influence on all phases of race relations."

Summarizing the significant role of the public schools in producing the New Negro and the New South, he tells us:

> The values which the public schools have contributed to the South are not to be lightly tossed aside. When one looks back on the long struggle, the substantial appropriations, the extensive philanthropy, and human devotion which have gone into their development, it will be realized in the words of Jonathan Daniels: "To sacrifice the public schools would not be to secede from the Nation, but to secede from civilization." Their progress must continue at all costs. (p. 123)

He is also convinced that since the right to vote is basic to the attainment of all civil rights the Negro must have that right if he is to protect himself in the enjoyment of all other civil rights. Otherwise the question of civil rights will continue to be "a sore spot in American democracy." (p. 132)

In line with a technique long employed by the Interracial Commission he lets facts speak for themselves. Integration is a success in the Armed Services. Jim Crow has been eliminated in interstate travel and has in fact never been practiced by the airlines. And segregation had been abolished in the Baltimore, Washington, Louisville, and St. Louis school systems by 1956, while in varying degrees desegregation had taken place in 780 smaller communities with "very little of the predicted race friction." (p. 147)

While he believes that the white man will put as much social distance as possible between his family and the family of the Negro as long as the wide differences of the two races in health, morals, manners, and education exist, and especially in areas of heavy Negro majorities where the Negro has progressed least, he admits that with respect to the method of preserving its standards of manners and morals through the use of segregation "the white South finds itself in quandary." "The longer Negroes are kept apart from the currents of progress with inferior facilities, the longer will their standards be lower than those of the whites." With equal candor he admits that even

in spite of these handicaps, however, an increasing number of colored people by dint of great effort, have overcome the handicaps of their environment and by any measure applied, meet the requirements of first class American citizens.

Our author sticks to his purpose neither to praise nor to blame. This does not deter him from lecturing both racial groups. On the whole SOUTHERN RACE PROGRESS is the product of a generous spirit. Only on rare occasions does the author dwell upon the plight of the moderate in race relations and the sense of isolation which came to a Southerner who espoused the moderate position forty years ago.

With much of what he has said one will agree, and certainly readers will feel he strives to see both the point of view of the Negro and that of the white South. One who reads this account of his fifty years of effort to understand the problem and to find solutions for it, whether he agrees or not, will recognize that Thomas Jackson Woofter has had wide experience and collected a valuable body of knowledge. Certainly most people will feel he has earned the right to have his say and express his point of view.

HENRY J. MCGUINN